

A Study on Public Spaces of Kathmandu Metropolitan City for Policy Revision

NOVEMBER, 2016

Submitted by:

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STUDY REPORT

Title: A Study on Public Open Spaces of Kathmandu Metropolitan City for Policy Revision

Area Coverage: Kathmandu Metropolitan City

Study Completed date: November 30,2016

Study Conducted by: Resource Centre for Primary Health Care

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ACRONYMS

CBS	Central Bureau of Statistics
DUDBC	Department of Urban Development and Building Construction
GoN	Government of Nepal
HH	Household
KVTDC	Kathmandu Valley Town Development Committee
KMC	Kathmandu Metropolitan City
KV	Kathmandu Valley
LP	Land Pooling
LSMC	Land Management Steering Committee
PCO	Project Coordination Office
TDC	Town Development Committee
TDCA	Town Development Committee Act
UC	Users Committee
VDC	Village Development Committee
TLO	Tole Level Organization

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Chapter 1. INTRODUCTION

1.1 Definition of Public Open Spaces

Public Open spaces are where people discover the value and benefits of public life. These authenticate the city's image and identity. These are the places for social activities and maturing of culture itself. Venkatasubramanian (1991) defines open space as, "undeveloped or predominantly undeveloped land in an urban area which has a value for park and recreation purposes, conservation of land for historic and scenic purposes".

Open space is not only for recreation and conservation of environmental and cultural values, it is the foundation of urban livability. It underpins many social, ecological and economic activities that are essential to healthy functioning of the urban environment. These are not only the breathing spaces of the city but are the places for interplay between people's activity and urban forms. Moreover, these are the open air theatres for an array of displays: from the complex festivals, to the expertise of trade, to the frozen artistry of the amazing monuments that quietly shape these premier urban open spaces.

1.2 Importance of the Study

It is evident that man is a biological unit thus needs fresh air to breathe, open space to get fresh air and healthy walking. However cities are growing day by day tremendously is shrinking the open spaces within it. KMC is not an exception in this context. A study shows that around 9 to 12 % of constructions occur annually in Kathmandu and other urban areas of Nepal. The rapid and uncontrolled urbanization is also responsible for the encroachment of agricultural areas, river banks and cultural heritage areas. The demand of public open spaces is increasing with the rapid and haphazard urbanization in Kathmandu (*G Basyal, S Chaudhary, S N Shrestha, 2015, Open Spaces Inventory and Analysis for Planning of Earthquake Emergencies for Safe Evacuation Sites in Kathmandu Valley*). The lack of public open space is making Kathmandu unhealthy as there is no place for relaxation and exercises.

Further the rush for searching open spaces during recent disaster 25 April and May 29, 2015 earthquakes shows clear essential of open spaces (*S Manandhar, 2015 Management of Public Land for Urban Open Space: In case of Disaster Risk Reduction FIG – ISPRS workshop*). Further man is a social animal and demands a place for social interaction. Open spaces also serve as a place for socialization and community building. Kathmandu with the lack of open space is facing problems for socialization spaces as well.

After the 2015 earthquake, the government of Nepal has made several attempts for the improvement of open spaces in Kathmandu valley. The policies and programs 2071/72 issued by Government of Nepal mentions that gardens and play grounds will be constructed in various places of Kathmandu (line no. 43). The line no 78 of same document mentions that there will be provision of one play ground for each election area. Further line no. 132 mentions that public lands of Kathmandu valley will be preserved and necessary land will be purchased to allocate open spaces in at least ten places in Kathmandu valley (*KVDA 2015, The Atlas of Open Spaces*).

The study will prepare a document incorporating all the issues and solutions made by Government regarding open spaces planning and protection including the recommendations on the relevant issues.

1.3 Objective of the Study

The main objective of the study is to understand the policy environment and develop recommendations based on the study which promotes protection and inclusion of public open spaces in city planning. The specific objectives are:

1. To study the existing situation and problems of the public open spaces of Kathmandu Metropolitan City.
2. To review existing government policy documents for public open spaces.
3. To make recommends for the policies revision for the protection, mangement and proper planning of public open spaces in Kathmandu Metropolitan City.

Chapter 2. STUDY METHODOLOGY AND LIMITATIONS

2.1 Study Methodology

The study has adopted cross sectional exploratory research for the study of the public open spaces of Kathmandu Metropolitan City. The qualitative analysis is done for the in depth study of the selected public open spaces. The study is based upon following methodology.

2.1.1 Preliminary Preparation and Desk Study

Preliminary Preparedness and Desk Study includes the collection of all the existing and relevant government acts, policy and norms related to the open spaces, all the publications from different media like newspaper, internet etc. All the collected documents are reviewed in this stage. Data Collection

The Primary Data Collection includes reconnaissance survey (field observation), interview with key personnel and questionnaire survey. Data collection has been much focused on the field observation and interview with key personnel to understand the existing problems and issues.

- Reconnaissance survey is made for predetermined criteria like the existing situation of the area, and the changes taking place is analyzed based on its physical and social character, stress on infrastructure, emergence of new function and boundary. It is complemented by photographic survey. A visual assessment of the existing scenario and discussions with the concerned person can be made.
- Key informant survey is carried out to identify the major issues, problems and alterations of the open spaces. Interviews are done with the management body of the particular open space, locals, related government officers (Kathmandu Metropolitan City, Department of Urban Development and Building Construction- Environment Section, Ward Office) and the local user groups as well. Specific question (open ended questions) can be carried out to gather primary data from Questionnaire survey and key informants' interview.

Secondary Data collection is done for secondary information base maps, cadastral maps and aerial photos can be collected through related institutions and personals. It includes collection of published research materials, journals, articles, government policies, acts and standards related to the study.

Sampling: Sample sizes for the field survey of the research are determined as per the use of the open spaces and following attributes are considered for selection of open spaces for the study:

- Culture specific
- Accessibility and Proximity
- Carrying capacity
- Livable and improvement in quality of life
- safety & security
- ecological factor
- economic factor (capture land value rise)
- social factor

S. No.	Parameter	Description
1.	Culture specific	The bahals and durbar squares have huge contribution in serving as traditional open spaces. Traditionally these open spaces are created as part of culture.
2.	Accessibility and Proximity	The open spaces those are easily accessible especially during disaster so this parameter is included. Also open spaces within the walking distance from the neighborhood.
3.	Carrying capacity	To study the open spaces could cater larger density. There are many open spaces in KMC but they may not be able to adjust at least all the population nearby during disasters.
4.	Livable and improvement in quality of life	To observe variety of activities and identify the maximum types of problems
5.	Safety & security	To identify problems and issues in those open spaces that could be used during emergencies.
6.	Ecological factor	To study the extent of noise pollution, air pollution, water pollution (in case of water bodies) etc
7.	Economic factor	To study whether land value rise has been captured in the areas closure to open spaces
8.	Social factor	Open spaces that can cater different activities like playing, walking, jogging, social interaction, refreshments etc- open spaces that contribute in healthy lifestyles enhancement

2.1.2 Field Investigation and Documentation

The appropriate open spaces are selected for the study based upon the above mentioned sampling technique. Field investigation is carried out to identify the existing problems and issues of the open spaces of Kathmandu Metropolitan City. The investigation has assessed the various aspects like physical infrastructures, social, economic and environmental issues, management of public open spaces and planning of public open spaces (planning within the open space and planning of open space in overall city planning).

Physical infrastructure includes all the infrastructures like access road, pedestrian way, furniture, lighting, drinking water, sanitation and drainage, solid waste management etc. The observation and questionnaires determine the existing situation, quality and deficiencies of the infrastructures. The questions are asked to the users group, management committee and the ward offices.

Social, economic and environmental issues include the safety and security, gender issues, inclusiveness (children, youths, elderly, disables etc.), encroachments, disaster friendly, willingness of users, noise pollution, air pollution, ecological parameters, capturing land value rise etc. The open space users and management committee is asked about these issues and observations will be made as well.

Management of Public Open Spaces include issues on transformations of open spaces, role of community in managing and preserving the open spaces, maintenance issues, challenges in managing the open spaces etc. The questions are asked to the management committee. The management body can be the local users' committee, ward offices, Guthi Sansthan etc. Further other types of management bodies are identified during the data collection phase.

Planning of Public Open Spaces include the issues related to the planning with in the open spaces and planning of open space in overall city planning. It includes the planning of infrastructures, pavements, landscapes and furniture in the open spaces. Planning of open spaces in overall city planning concept includes the policies and strategies for incorporating open spaces in the planning of cities, proper distribution of open spaces, development of new open spaces, and mechanisms for monitoring the transformations that enhance the planning of the public open spaces. The Ministry of Urban Development (MoUD) - DUDBC, Ministry of Population and Environment, Ministry of Federal Affairs and Local Development (MoFALD), KMC, KVDA, ward offices and other government institutions related to the study that are identified during the data collection process will be largely responsible for planning of the open spaces.

Key informant survey is done with the management body and the local experts to identify the problems regarding management of open spaces, factors hindering the proper use of open spaces, transformations observed in the open spaces, encroachment etc. Further, the local user groups are questioned on their problems on using and expectations on improvement of the open spaces. The data collected is recorded in report format and in maps as well. The field investigation is supported by visual observation and photography.

2.1.3 Data Processing and Analysis

All the primary and secondary data and other information are rigorously studied and analyzed. The problems, issues and potentials are identified. All the outputs from filed survey, interviews with open space users (morning and evening users- *most of the activities in open spaces are found in morning and day time like jogging, walking, playing and mostly people are busy in the afternoons*), only in the winter open spaces are utilized in day times by elderly and children for sun bathing), management bodies, concerned government agencies and experts will be duly considered and justified through the secondary data analysis. All obtained information, data, and studies are analyzed comparatively based on problems, issues and potentials of the study topic from social, cultural, physical, environmental and economic perspectives. The collected government policies, acts, norms, publications are analyzed to identify the merits and shortcomings of the existing government documents. The findings from the data analysis and the standards from literatures are used for the recommendations on protection and proper planning of open spaces.

2.1.4 Recommendation

After analyzing, necessary maps and recommendations are drafted for better protection and proper planning of open spaces in Kathmandu Metropolitan City. The recommendations are derived after thorough revision of existing government acts, policies and standards. The study proposes the recommendations that are missing in the existing acts, policies and standards.

2.2 Limitations

The study has following limitations

The study focuses on following open spaces:

1. Courtyard Settlements (Bahaa, Bahaal)
2. Open spaces in new development areas
3. Public parks, playgrounds and squares (durbar squares in the core area)

-The study does not include the open spaces which are not readily accessible for public.

-The study does not include the cases from other form of traditional open spaces like lachhi, nani, khyos etc.

-In case of Bahaals, the open spaces in core areas, the study is done to know the existing situation of these open spaces. The recommendations focus only on the preservation of these open spaces.

- In new development areas, the study is carried out for the availability and arrangement of public open spaces in land pooling areas (Parks, Playgrounds, Community area) of KMC only. The recommendations focus on the proper planning of public open spaces and inclusion of open spaces in the city planning.
- The study of open spaces is focused on the existing situation and the protection of those open spaces.
- The study also includes water bodies within the open spaces.
- The study does not include the cases of Public Open Spaces like Balaju Park, Tribhuvan Park etc which serve as picnic spots as well apart from other functions.

Chapter 3. LITERATURE REVIEW

3.1 Overview of Public Open Spaces

Public Open Space has become an integral of the public landscape for all communities. It plays “an important part in urban heritage, it makes a valuable contribution to environmental quality, health and social cohesion and receives public endorsement as major contribute to quality of life” (Gallacher 2005, pp. 41). “Public Spaces as expressions of human endeavor and artifacts of the social world are the physical and metaphysical heart of the cities, thus providing channels for movement, nodes of communication and common ground for cultural activities.” (Whyte 1980)

In defining public open space it is essential to break up the words that make the concept. Oxford dictionary provides the following definitions:

Public: open to or shared by the people;

Open: not closed or blocked up, allowing entrance or passage or access to public; and

Space: interval between points or objects, area.

It can be gathered from the definitions that public open space is a common area that is not closed or blocked up and provides access for people to share. It is space that is shared with strangers, a common place for enjoyment, gathering, politics, religion, commerce, sport. Its character expresses conditions of public life, civic culture and everyday discourse (Woolley 2003, pp. 3). Public open space is an essential part of a city with quality spaces having an immense impact on a city ranging in all areas including social, economic and environmental benefits. Open space can serve different needs depending on its size, location, accessibility, landscape design and facilities. For example, it is often the case that larger open spaces in urban areas successfully combine provision for physical recreation such as sports pitches and children's play areas with amenity open space used by people primarily for exercise and relaxation purposes. Open space can enhance the character of residential areas, civic buildings, conservation areas, listed buildings and archaeological sites.

3.2 History of Public Open Spaces in KMC

Traditional urban spaces are simply the creation of their times. Their forms simply follow nature and respect the culture of their society that they possess high degree of urbanity. Thus, they reflect high quality of civility and architecture (Spreiregen 1965)

According to the paper prepared by Tiwari (1999), the ancient Kirata settlement was centered on a built space protector god, Dyochhen, the house of god, which had a counterpart natural spot outside the town called Pith, literally the natural abode of the godly spirit. The pith was always located in an ecologically important site, such a clump of trees, rock spur, spring source of water, hillock and the like found within the agricultural hinterland of individual settlements. With the development, settlements started growing with rising commerce and pringgas may have expanded out to the farms. In the same way, with increasing population living in one built up area, the influence area and the agricultural hinterland expanded beyond the ability of one nature protector or pith. Increasing densities and large conglomerate demanded fresher ways of retaining social relationships and feeling of community. The central pith of the pringga was replaced by the palace and the royal tutelary. The corresponding piths moved a little inwards from the surrounding fields to define the boundary of the town itself. Religious rituals, festivals and taboos were charted and popularized to ensure that the piths remained the perimeter of the town.

From the days denser settlements developed in the valley, the process of formation of 'micro-heat & waste sub-structure' natural to the process of dense urban areas must have been apparent to

Kathmandu valley planners and dwellers. More mundane systems to collect and age night soil from the city and dispose to surrounding arms as manure were developed. Interior courtyards formed by groups of houses were used as Sagah or a composting place for vegetable waste matter. Periodic cleaning of Sagahs and other city elements that tended to become polluted were also given religious imagery that demanded unfailing cleaning cycles. Apparently this was not acceptable once the town grew in size and later towns consciously provided for lung space through several khyo, large chunks of open green space located inside the perimeter of the town. Town level festivities congregated here in annual cycles, again ensuring that town expansion do not eat up those. (Tiwari, 1999)

The history of public open spaces in Kathmandu originated from the traditional Newari settlement of Kathmandu Valley which was planned in concentric rings with the outermost ring for the agricultural purpose a sustainable place from the environmental and ecological point of view. The planning of the traditional town is characterized by the narrow streets and the open spaces with distinct neighborhood pattern. Every individual houses are connected with the nani or residential courtyard which is in turn connected to the street. The streets are connected to the large open spaces with the landmarks. The historical monumental zones and the temple areas serve open spaces in the traditional settlement. Every traditional pathways junction has been marked with some religious and or cultural elements, like temples, Bahi, well, stone spout, pati etc.

Traditional towns of Kathmandu Valley consist of numerous urban squares –public spaces where a great amount of human interaction takes place till date. Urban Square is a form of public open space in a city, considerably larger and easily accessible by the community, where notable amount of public activity takes place. Most of these are centrally located and represent civic center of the city.

According to Pant, the traditional settlement shows the clan settlement unit, nani, a residential complex with a big courtyard and a shrine in the middle. Number of Nani leads a neighborhood quarter, Tole, with ganesh as symbol of tole. Again these numbers of Tole make a Mandalika. The cluster of Mandalika finally makes a Large Town.

Clan Settlement Unit-Nani

Nani A+ Nani B+Tol A

Tol A+ Tol B+Mandalika A

Mandalika A+ Mandalika B + ... Town

Source Pant, 2002

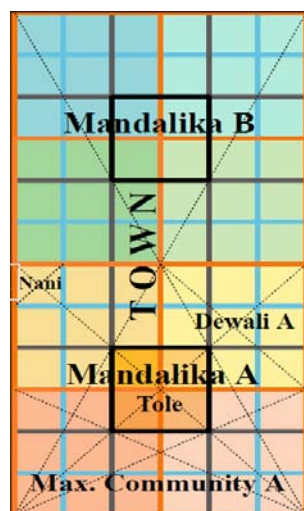


Figure 1: Traditional Settlement Module

In the Malla towns of Kathmandu Valley, it is evident that the squares have been conceived in relation to the streets. Tiwari (1998) explains the phenomenon of development of urban squares as follows:

The towns had farmlands all around the settlements and across the river causing the growth of radial streets to rivers and farms- two or more of these streets would then join as they reach into the town – such nodal points developed into squares with increasing social importance as they got closer to the city centre. All such streets would ultimately converge in the Durbar Square, the central palace nodal point, where all social activities also converged.

3.3 Attributes of Public Open Spaces

- Palace Square
- The Market / Civic Squares
- The Neighborhood Squares or Community Courtyards
- The Transitional Spaces
- Community/Religious Open Spaces
- Parks / green areas □ Pond/ Water Bodies/ Fountain/ Water front

3.3.1 The Palace Square

This was the major public square shaped by the edges of the palace complex along with number of temples, raised performance platforms and sculpture elements like statue pillars. This square confirmed to the viable image of a public open space by the virtue of concentration of an array of activities in the form of major cultural proceedings like festivals and socio-political gatherings.

The palace square actually acted as an open air theatre, uniquely achieved by the demarcation, hierarchy and flow of spaces within spaces



Figure 2: Kathmandu Durbar Square (source: P Hada)

3.3.2 The Market / Civic Squares

These were the major Market nodes for commercial exchange. Moreover, these were the public places for daily socializing, foyer for squares beyond and collection space during earthquakes, often marked by temples and structures of religious and landmark values. The visual anticipation is often provoked by a decent architectural element at the mouth of the square, leading to the dynamism of a major monument of high architectural value land marking the square.



Figure 3: Market Square, Ason (source: P Hada)

3.3.3 The Neighborhood Squares or Community Courtyards

People lived in communities, both socially and culturally. A system of neighborhoods radiated from the palace nucleus, laid out in a hierarchy of blocks, often maintained with homogeneity determined by occupation and often confused with caste hierarchy. From the streets, the alleyways, often through the buildings, lead to the inner neighborhood courtyards. These were either the community courtyards of certain occupation groups or the *Bahas* and *Bahis* of Buddhist Monastic genre. These courtyards provided the types of infrastructure corresponding to the needs of those in the neighborhood. These functioned for multiple activities like the feasts, drying of grains, and play area for children, specific religious and communal proceedings, and space during hazards and even for washing clothes, sun bathing and mere gossiping. Most suitably, community well, water tank, orchestra pavilion, Buddhist Votive *stupas* and shrines marked these spaces.



Figure 4: Yatkha Bahal. Community space (source: P Hada)

More often, a variety of more private family courtyards called the *nani*, *chuka* and *paukya* in local language were located deeper inter-connected with the neighborhood squares. Also, some private courtyards with arcane shrine were also there.

3.3.4 The Transitional Spaces

Added to the public and community spaces, there were also transitional semi private/public spaces, sometimes called the *lacchi*. These spaces were formed by setting back of buildings along the street at certain strategic points. These spaces were for making offerings to the chariot during the festivals. Sometimes some public rest house, water spouts or wells were placed at these spaces.

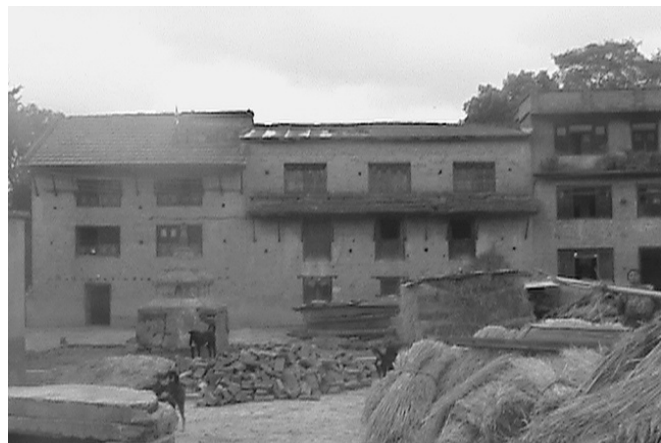


Figure 5: Lachhi, a transitional Space (source: P Hada)

3.3.5 Religious Open Spaces

These are the open space near to city or within city, which highlight daily religious activities. It also makes a special visit day for cultural and festival events. It creates the value of temples and structures of religious and is landmark of the country. This type of open space has visual legibility with decent architecture. It helps to develop good connection and linkage with neighborhoods. This type of space also facilities of rest house and water as stone water spout.



Figure 6 : "Shwyambhu" an open religious space (source: P Hada)

3.3.6 Parks and Playgrounds

Parks or Green Spaces are Soft landscaped area with vegetations serving as city parks. When square is a centralized concept and a nucleus of urban activity whereas the park evolved from opposite need – breaking from traffic, commerce and crowds. Playgrounds are small areas of open space that are accessible to local residents, generally providing for recreation such as children's play and relaxation, which also can provide an identity and a sense of place for a community especially where it incorporates an important landscape feature or historic characteristic. Public parks and playgrounds are common settings for outdoor recreation pursuits. Parks and playgrounds provide a wide variety of opportunities for physical activity and have the potential to help many lead a more active lifestyle. Playgrounds not only serve the needs of children and adults, they can also serve the greater needs for urban communities to access open space and facilitate urban ecological systems. It includes the parks such as UN Park which are more formal and maintained by government agencies or municipalities directly.



Figure 7: Ratna Park



Figure UN Park

3.3.7 Water Bodies

Ponds, Fountains, and other forms of water bodies are form of public urban space from which both aesthetic and ecological benefit can be obtained. People and their children take such elements as place of joy and refreshment.



Figure 8: Rani Pokhari as Water Body (source: P Hada)

3.4 Principle Development for Public Open Space

The key principles of the development of open spaces are:

- To be seen as part of the urban and social fabric of the city, not as a separate entity.
- To reflect the existing character of Space, whilst providing a higher standard and quality of public realm than currently exists.
- To create thriving day and night time urban experiences through increased activity from office and residential, supported by a variety of commercial, retail and entertainment enterprises.
- To optimize the environmental, economic and social benefits of transit oriented development by maximizing employment with open space development.
- To support the broader sustainable goals of efficient resource use, by providing the opportunity for people to live close to employment, their daily needs, social facilities and leisure activities, ultimately reducing the need for private car use.
- To create a distinct and aesthetically pleasing urban environment through the highest levels of innovation and quality in terms of public space and architectural design.
- To ensure effective place management such as daily activation, small and large events, daytime and night-time safety, commercial tenant mix, operation and maintenance.

3.4.1 Criteria for Open space

- **Access and Linkage**
 - Probable Central Location, Safe and Easy access
 - accessible to children and disabled people
- **Comfort and Image**

- Feeling of Belonging, Security, Imageability, Contextual
- **Use and Activities**
 - Vibrant use to make the places lively and happening, Public oriented activity
- **Sociability**
 - Enables socialization through activities, interactions and social intercourse, enhance the quality of urban community

3.5 Contemporary Urbanization Pattern and Public Open Spaces for KMC

Urbanization pattern of Kathmandu valley is rapid and haphazard. The emerging contemporary neighborhood could not follow the even the basic system of neighborhood and public urban space. Community living culture is diminishing and thinking about own boundary arise in modern time. Failure in public dimension of planning and design has created new set of problems - discontinuity in traditional architectural vocabulary, destruction of community spaces and intensification of earthquake vulnerability. The earlier use of public open spaces by different people at different time for multiple activities has been illegally encroached upon by incompatible commercial activities focusing on the potential customers only.

3.5.1 Modern neighborhood module

Residential cluster + Residential cluster = Neighbourhood Quarter

Neighbourhood Quarter + Neighbourhood Quarter = Residential Town (Pant 2002)

The lack of conducive open spaces in residential neighborhoods decreases the chance for informal interaction among residents. Isolation, feeling of low confidence and fear are unpleasant effects of leading less socializing and participation. Also, it has negatively contributed to neighborhoods as inhospitable hosts for human to live, build a family, develop a community, and also interact with their natural environment. Communication and automobile have greatly helped to degrade the public space. As a result people are losing their value in a community or society. Providing the sufficient public space in neighborhood can bring the coherent social integration among the people in a society. There is also a growing decline in the quality of the urban experience, declining quality and quantum of urban environment due to rise of cyber space and indoor life.

With rapid urbanization- agriculture area, river bank, cultural/heritage areas are encroached. Therefore, the demand of open spaces is increasing and on the other side due to different development constructions, there is rapid decrease in open spaces. According to Tiwari, with recent mismanagement of urbanization most of the *khyos*¹ and forested clumps are engulfed by the town as space for building. Also the open spaces in town like courtyards and *larchhi*² are slowly vanishing due to failing social control and lack of legal backing. The crumbling of traditional culture has led to filling of ponds and stone water conduits for building. The super densification combined with such a situation has led to an immense need for open spaces and greenery. Several open space associated cultural expressions have also ceased in the process.

3.5.2 Changes and Challenges

- Breakdown of traditional organization and structure of the society
- Growing heterogeneity, diversity and density
- Loss of traditional spaces

¹ Large Open Space kept for the public benefit at the peripheral area in "newari" towns

² Private Space in front of the house allocated for public use

- Unmanaged privatization of public spaces
- Lesson from past planning is not followed in growing neighborhoods
- No new open public spaces added
- Urban Poverty and Public spaces
- Encroachment of streets and squares
- Overcrowding of public spaces – reflection of lack of access to private spaces for leisure?
- Cyber space, indoor life and public urban space (Tiwari, 2011)

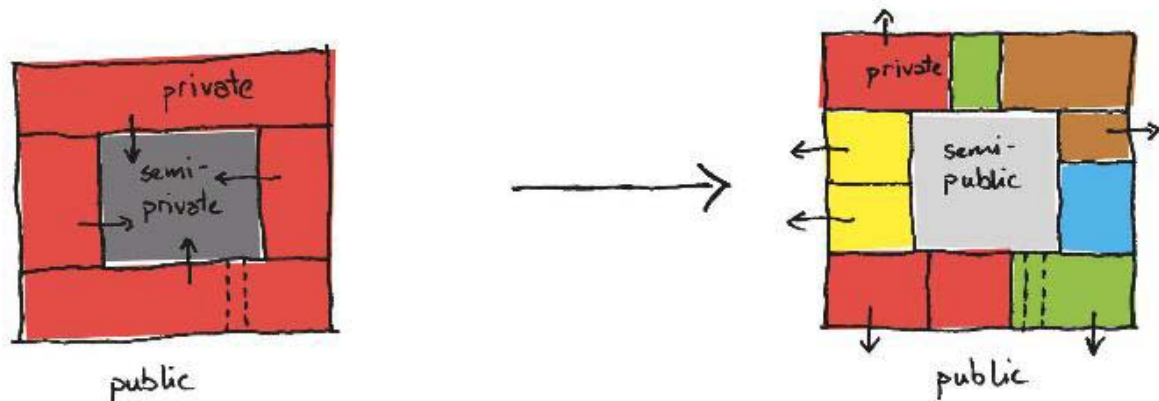


Figure 9: Changes in Neighborhood Space (source: S Shrestha)

3.6 Necessity of Public Open Spaces and its Planning

In Kathmandu, a number of open spaces play a key role in providing venues for a range of community events including music concerts, fairs and fetes and sporting competitions. Access to open spaces for sport, play or general recreation is viewed as an important part of life. Open spaces also play an important role in developing communities, health and well-being enhancing biodiversity value, urban regeneration, recreation, flood prevention, and education.

The rapid pace of development, social shifting and subsequent commercialization, the image of open space is being lost into a characterless chaos. There seems a need of a Vision for the whole city reinforced by comprehensive strategies and measures that can be dealt at local level which will help in bringing these places back to the people. Moreover, the remarkable design philosophies of these spaces confirming to the visual and functional principles could actually be the logical paradigm for future urban open spaces of the city. Understanding all these theories we can refine it in summary that we need urban open spaces and its planning in which following seven characteristics define a Successful Urban Open Space.

1. Encourages social exchange/interaction: The space is a welcoming, friendly space with options for sociability and interpersonal connections. (I think better to put them in order of importance, eg health and ecological benefits on top, and less important ones at bottom)

2. Enables positive experiential interaction with the natural world:

Encourage sense of emotional and psychological peace through interaction with vegetation, water and animals and birds life with the public for natural relaxation and good environment.

3. Provides for passive and active recreation:

The space offers activities and uses for different ages, groups/individuals at different times of day. The use of space should fulfill the diversity demand of the public.

4. Retains a strong sense of place:

The space promotes a feeling of community and connection to neighborhood, district, city; sense of cleanliness, safety and comfort, history and importance of place.

5. Promote urban ecological/human health benefits:

Local pollution control, air and water quality improvements and design for self-sustainable space.

6. Accessible to the constituent community:

Need to be convenient to public transit, accessibility to disable and adjacent to neighborhoods, ease of entrance and exit, good control on distance from dangerous pedestrian roads and auto traffic.

7. Enables multiple sector activities:

The space allows recreation and income generation which can appeal to a broader urban audience, generate more value and create a more inviting urban open space with public art. Need of facilities like Parking, benches, lights, well maintain toilet and some snacks and drink bar with proper management for waste and garbage to give the significant of space and retain people in place. Boundary and space should be more legible and open to activity edges.

A successful Public open space defined in this study enriches urban life for city residents by generally satisfying at least five of the above qualities.

3.7 Classification of Open Spaces in Hierarchical order

According to the article "**Conservation and Development of Open Spaces in Kathmandu Valley**" by Er. Kishwor Thapa, open spaces can be classified into four types as per hierarchy:

1. City Level open spaces

City level open spaces include open spaces like Tudikhel, Ratna Park, UN park etc in Kathmandu. Such open spaces can be used for parades, political programs, social/ cultural programs, exhibitions etc. These spaces are more formal and maintained by government agencies or municipalities directly. It should be owned and managed by the municipality due to its size, scale and equally belonging to all citizens.

2. Neighborhood/ Ward level open spaces

The neighborhood level open spaces are accessible to the people of neighborhood and can be used for small sports events, social/ cultural programs, evening markets, disaster management and as public parks/ gardens. Newly built Narayan Chaur, Playground at Sano Gauchar and Shankha Park at Maharajgunj, Kathmandu are some of the examples of such open space. It should be maintained by ward office of municipality.

3. Tole Level Open Space

Tole level open spaces are accessible to people living at the tole or a particular locality. These are generally used by children, senior citizen, disable people, and women particularly house wives. Activities that can be allowed in such open spaces are: evening market, hanging out for people of all age groups, children's play area, tole level social or official programs, wedding program, party/ banquets etc. It should be owned by local clubs or tole level organization.

4. Cluster(or lane) level open space

Cluster or lane level open spaces are located next to the group of houses which are arranged along a road, lane or courtyard. The traditional bahals of inner city of Kathmandu are good examples of such spaces. Sometimes, a courtyard or wider road can serve as such cluster level open space. These spaces are used for tot-lots (play area for infants), temporary parking, greenery, waiting area, place for putting garbage bins, temporary dumping area for construction debris or place for loading and unloading construction materials. It should be maintained jointly by the house owners

3.8 Summary of literature review

Public open space is a common area that is not closed or blocked up and provides access for people to share. It is space that is shared with strangers, a common place for enjoyment, gathering, politics, religion, commerce, sport. Its character expresses conditions of public life, civic culture and everyday discourse (Woolley 2003, pp. 3). Open space can serve different needs depending on its size, location, accessibility, landscape design and facilities. It can also help to attract business and tourism and thereby contribute to the process of urban regeneration. Traditional towns of Kathmandu Valley consist of numerous urban squares –public spaces where a great amount of human interaction takes place till date. Most of these are centrally located and represent civic centre of the city. Palace Square, The Market / Civic Squares , The Neighborhood Squares or Community Courtyards, The Transitional Spaces, Community/Religious Open Spaces, Parks / green areas, Pond/ Water Bodies/ Fountain/ Water front are taken as the attributes of Public open spaces. There are different criteria regarded for the Open spaces design principles, which includes **Access and Linkage, Comfort and Image, Use and Activities, and Sociability.**

The earlier use of public open spaces by different people at different time for multiple activities has been illegally encroached upon by incompatible commercial activities focusing on the potential customers only. Community living culture is diminishing and thinking about own boundary arise in modern time. The lack of conducive open spaces in residential neighborhoods decreases the chance for informal interaction among residents. There is also a growing decline in the quality of the urban experience, declining quality and quantum of urban environment due to rise of cyber space and indoor life.

Therefore, open spaces plays an important role in developing communities, health and well-being enhancing biodiversity value, urban regeneration, recreation, and education.

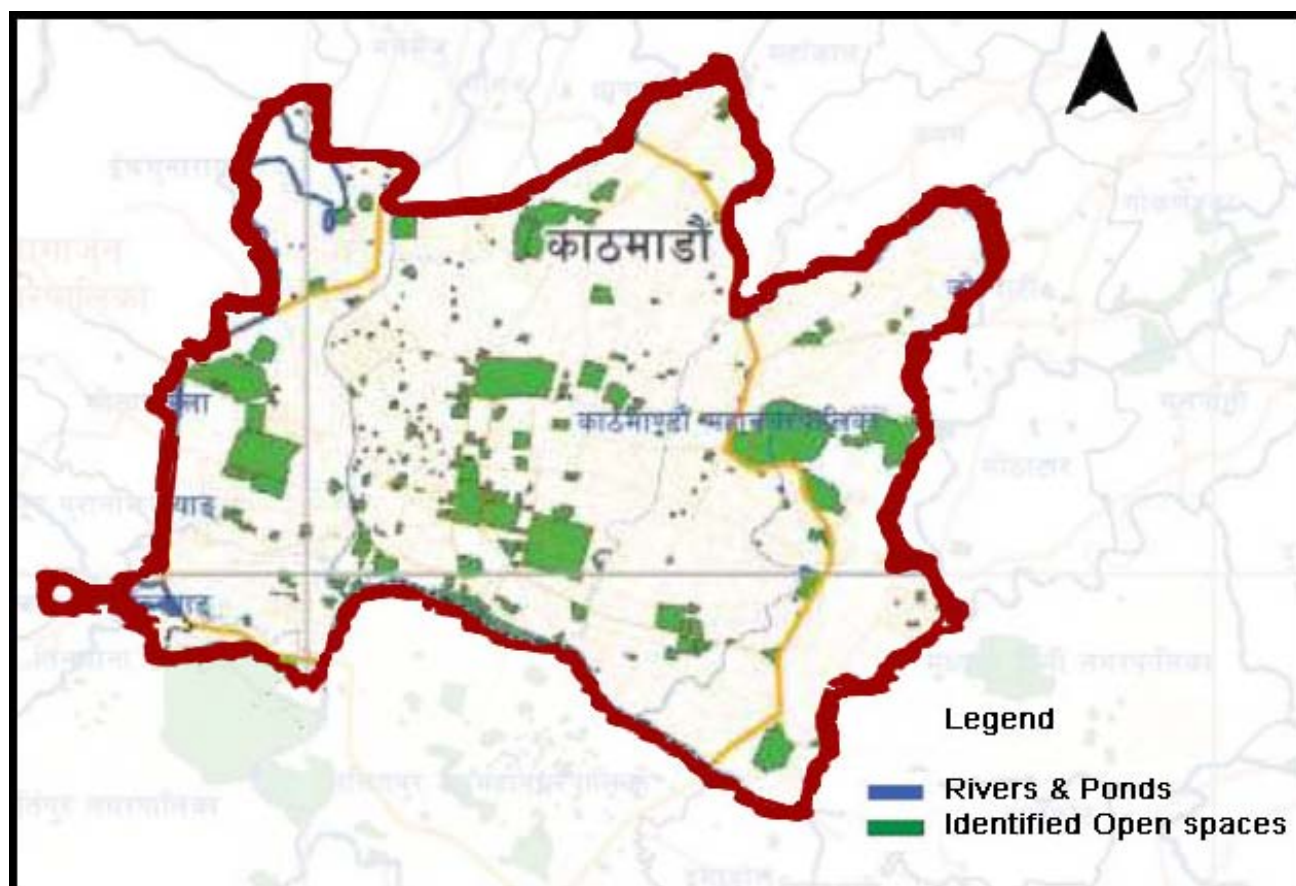
3.9 Statistics of Public Open Spaces in Kathmandu

There is no complete and accurate official statistics of the public open spaces in Kathmandu. The KVDA has published" Atlas of Open Spaces" in 2015 which has listed all the probable open spaces in Kathmandu Valley which can be utilized during disasters. However the list presents only combined quantity of public and privately owned open spaces, and is not disaggregated.

The Atlas has identified various open spaces in the Kathmandu valley and did mapping of the same. It has identified 887 open spaces in the valley comprising of 488 open spaces in Kathmandu district, 346 in Lalitpur district and 53 open spaces in Bhaktapur district. Only 58 percentage of identified open space can be used. In KMC the Atlas mapping has identified 266 open spaces both private and public

for the purpose of emergency shelter during the disaster, breakdown shown in the table below. The ownerships of open spaces are institutional, Government of Nepal, private lease, religious institutions (Guthi, temple, Bihar, Church etc), hospitals, schools, colleges etc.

Figure: Identified Open Spaces in KMC for emergency shelter during the Disaster



(Source: Atlas of Open Spaces in Kathmandu Valley, KVDA, 2015)

Table: Identified Open Spaces in KMC

Open Space Area (sq. m)	Open Space No's	Total Open Space Area (sq. m)	Usable Open Space (sq. m)
Up to 10000	48	4,576,185	2,427,525
5000- 10000	36	553,718	256,386
Above 5000	182	607,366	278,377

Total	266	5,737,268	2,962,287
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(Source: Atlas of Open Spaces, KVDA)

KVDA further has conducted various studies which show the status of open spaces then and now in Kathmandu valley. The table shows that the share of public open spaces are depleting while the share of built up area has gone up by several folds since 1980 to 2012 A.D.

Table: Land Cover in Kathmandu Valley, 1980 – 2010/2012

Land Cover	Area (in sq.km)			
Year	1980	1990	2000	2010/12
Agricultural	421.63	421.6	394.12	342.08
Built-up	38.03	38.09	66.54	118.65
Forest	253.5	253.34	253.56	251.08
Others	2.93	2.96	3.48	6.07
Open Space	2.29	2.39	2.03	2.01
Water body	3.48	3.5	2.14	1.98
Grand Total	721.87	721.87	721.87	721.87

*Note: Others indicate Barren land and Airport Areas

(Source: Atlas of Open Spaces in Kathmandu Valley, KVDA, 2015)

Table: Land Use Classes in Kathmandu Valley, 1980 – 2010/2012

Further different land pooling projects have contributed in developing significant area of open spaces

Land Use Classes	Gain/Loss (%)		
	1980-1990	1990-2000	2000-2010
Agricultural	-0.01	-6.52	-13.20
Commercial	0.00	82.28	0.00
Forest	-0.06	0.08	-0.98
Industrial	0.00	28.86	-1.27
Institutional	1.60	15.93	3.72
Military	-1.37	0.00	-0.40
Mixed Residential/ Commercial	1.63	202.29	106.35
Others	0.79	17.80	74.29
Public Utilities	7.23	16.92	0.00
Recreational / Open Space	4.00	-14.72	-1.04
Residential	0.87	111.55	103.96
Rural Settlement	7.80	-2.98	64.35
Special Area	15.54	0.00	-0.41
Transportation	0.53	17.63	3.59
Water body	0.39	-38.78	-7.59

in Kathmandu shown as below:

(Source: Joshi et al., 2013, p.38)

Land Development	Total Area		Road Area		Open Space Area		Asset creation in Crores (Rs. 2 crore / ropani)
	Ropani	Hectare	Ropani	Hectare	Ropani	Hectare	
Sites and Services	734.00	37.34	175.70	8.94	31.49	1.60	414.00
Land Pooling (Completed)	5100.00	259.46	1093.00	55.60	621.00	31.59	3,428.00
Land Pooling (On-going)	7956.00	404.75	1591.00	80.94	238.00	12.11	3,658.00
Guided Land Development	NA	NA	2546.00	129.52	NA	NA	5,092.00
TOTAL	13790.00	701.55	5405.70	275.01	890.49	45.30	12,592.00

(Source: Neupane, 2014, unpublished)

In 2013 (2069/11/14 in B.S.), Nepal Government issued gazette open spaces (includes both public and private open spaces) in Kathmandu valley to be remained as open spaces as provision for emergency shelter during the disasters in Kathmandu, and no construction works shall be held without the permission of the Nepal government. List of open spaces declared as emergency shelter for Kathmandu district is attached in the **annex (documents)**.

3.10 Policy, Acts and Legislations for Public Open Spaces in Nepal

According to **83 open spaces to S.A.M, setting an Example in Nepal how parks and open spaces can strengthen communities' resilience toward disaster by Pooja Shrestha**, in 2013 a joint Ministry of Home Affairs and the International Organization for Migration (IOM) assessment, with the support from USAID/OFDA, identified 83 open spaces suitable for Shelter, Aid and Medical Help (S.A.M) in the Kathmandu Valley. These open Spaces are designed to provide the initial response framework for the Government and partner agencies to engage in life-saving assistance to those in immediate need.

The **Land Use Policy 2072** is the revised version of land use policy 2069 after April 25 2015 with a vision of minimizing risk and providing safe settlement. Land use policy 2072 has identified that internal migration, haphazard settlement and urbanization has resulted in the surge of agricultural land and increment in encroachment of government, public and forest lands. It also mentions the lack of open spaces in the urban areas.

According to line no. 10 of strategy 3 mentioned in policy 2, minimum green areas, open spaces gardens, sports grounds and recreation areas will be developed in the residential areas of urban and rural areas. Similarly, according to line no. 11 of strategy 3 mentioned in policy 2, open spaces and green belts will be constructed along the both sides of river, road, ponds and canals.

In strategy 4 of policy 6, it is mentioned that the residential areas of urban and rural areas will have minimum byelaws for the greeneries and open spaces.

According to paragraph 6 of **Urban Environment Management Guideline 2067**, following tasks will be carried out to manage the open and green areas to make the urban environment clean and pollution free.

1. Identify and prepare estimation of the probable open spaces, river banks and other green areas of urban areas and implementation of plans in those areas with involvement of local communities.
2. As per public area management plan, respective authority will establish a separate section for the management of open and green spaces in the urban area and provide necessary physical, economic, human and other resources.
3. While preparing plan for urban areas priority should be given to the open and green spaces and 2.5 percentage of land will be allocated at tole level for the development of managed open and green areas. It will be implemented at policy and implementation level.
4. Endemic plants will be planted along the roads, rivers, garden, park areas etc. and proper management will be done for their take caring. Public private partnership will be developed for this purpose.

According to **Bye-laws 2064**, Kathmandu Metropolitan City is divided into various zones which include preserved zone and sports zone as well. Preserved zone is further sub-divided as green open sub-zone, park, forest sub-zone and cultural archeological and religious sub-zone. Green open sub-zone includes Dasrath Stadium, Tundikhel, Army Manch, Ratnapark, Bhrikuti Mandap etc. Park-forest sub-zone includes Raniban, Hatiban, Swyambhu, Bansbari and Zoo. These areas are meant for promotional and preservation only. The sports area includes Dasrath Stadium and Sano Gaucharan.

The by-laws have the following provision for community open space for planned residential zone:

- a. For 5 to 10 ropanies 5% of total land area
- b. For 10 to 25 ropanies 4% of total land area
- c. For 25 to 100 ropanies 3.5% of total land area
- d. For >100 ropanies 2.5% of total land areas

According to Preserved sub zone line no. 5, the construction of temporary sheds, walls are prohibited in the traditional chowks. Further projecting any kinds of cantilever, verandah or rooms are also not allowed in such chowks.

Apartment plots need to provide 50% of its total land as open space, of which 20% area is for open land surface and 30% are other open spaces. In residential plots, the ground coverage of the building ranges from 50 to 80% depending upon the size of the plot and its location in the prescribed zones. For institutional buildings, the ground coverage of the building ranges from 40 to 50% depending upon the type of institutions. The rest shall be allocated as open space.

The land allocated for open spaces in the land pooling projects in Kathmandu Valley is as follows:

S. No.	LP Project	Total area of land (Ha)	Open Space area (Ha)	Percentage of open space
1.	Dallu	20.15	1.424	7
2.	Gongabu	14.35	0.763	5.32
3.	Nayabazar	42.7	1.729	4
4.	Gopi Krishna/ Chabahil	10.22	0.41	3.98
5.	Sinamangal	46.51	2.44	5.3
6.	Chamati	73.25	-	-
7.	Ichangu	33.06	-	-

Source: DUDBC

The **Planning Norms and Standards, 2013** has mentioned that the minimum area of designated open space will be 2.5% of the Sub-metro city area with a provision of Neighborhood Park (with play equipment), Local Park Community Park, Zoo park and Specialized Park and 5% of the Metro-city area with a provision of Neighborhood Park (with play equipment), Local Park, Community Park, District/ Regional Parks etc. [1 @ 800 population (0.4 ha per site), 1 @ 10000 population (1 ha per site), 1 @ 20000 population (2 ha per site)] in Sub-metropolitan and Metropolitan cities respectively.

According to **National Urban Development Strategy 2015**, in KMC only 0.48% of the area is categorized as open space which is insignificant to serve the city as in neighboring India, Delhi has 20 % of its area as open space. Planned city of Chandigarh has 35%, and even congested Mumbai has 2.5 % (Express, 2011). WHO and FAO recommend a minimum availability of 9 meter² per person of green open space for the city dweller. Based on the Periodic Plan of the municipalities, in Kathmandu the availability is 0.25 meter² per person. It has further pointed out the major issues for open spaces which are listed below:

- At the national level, there is no clear and unambiguous policy regarding urban open spaces and parks. The existing provisions are fragmented and embedded within other policies and regulations.
- There is no inventory and monitoring of open space. Encroachment of open spaces is a major issue. Decline in open spaces in Kathmandu valley and other major cities owes largely to unmonitored encroachment, a reflection of poor governance.
- The types and hierarchies of open spaces within cities and time distance with respect to residential areas are other critical factors that should also be defined and designed to facilitate the planning process.

Further the UDS 2015 suggests that 2.5% of land should be allocated as public open green space at ward level (maintained, monitored) in existing urban area which can be supported by inventory of govt. land and open space in urban areas, and 5% of land should be allocated as public open green space at ward level (maintained, monitored) in new urban area which can be achieved by calculating the percentage of open space at ward level.

The Atlas of Open Spaces, KVDA 2015 explains that the policies and programs 2071/72 issued by Government of Nepal mentions that gardens and play grounds will be constructed in various places of Kathmandu (line no. 43). The line no 78 of same document mentions that there will be provision of one play ground for each election area. Further line no. 132 mentions that public lands of Kathmandu valley will be preserved and necessary land will be purchased to allocate open spaces in at least ten places in Kathmandu valley.

The Atlas has pointed out the following implementation strategies:

1. People should be made aware of the community open space its uses at local level. The open spaces will be very important for the local authority for preparing integrated local plans.
2. The open spaces should be preserved and promoted to develop as green areas so that the aesthetics of the city can be improved.
3. The access to the necessary physical infrastructures like drinking water, nearest hospital, health centers etc. should be developed so that these open spaces can be used fully in case of disasters. The open spaces are not self-sufficient and their capacities are limited so the basic infrastructures should be developed around the open spaces.
4. The identification of details of open spaces of Kathmandu Valley is not completed so the regular updates of the details of open spaces should be carried out.
5. Detail study of the open spaces should be carried out and the regular evaluation of their utilization should be done along with the preparation of database, process of regular monitoring and evaluation at ward level so VDC/ municipalities so that it would assist in the preservation of the open spaces.
6. It is necessary to prepare appropriate policies/ methodologies through co-ordination with the government, local authority, local stakeholders, local NGOs etc. to provide proper information on open spaces.
7. Appropriate ideas can be developed to make these open spaces safe for utilizing in emergency situation after disaster through consent of government and stakeholders. The pre-established work methodology between the local authorities (VDC/ municipality) should be established to utilize the open spaces in emergency cases.
8. The community managed open spaces are observed to be suitable. The local NGOs and community organization should advocate for the preservation and promotion of open spaces through local participation.
9. The local community disaster pre preparation plan should be prepared and utilized for the improvement of the existing condition of open spaces.

According to **KMC Budget 2073/74**, pp 7, pp 14, pp 22-23 following provisions are made for the open spaces in the urban areas

1.4 Urban Development Area

	Policy		Strategy		Implementing Strategy
3	Public open spaces will be utilized for the purpose of disaster management.	3.1	Co-ordination will be done with the stakeholders for using the open spaces within the metropolitan area during disaster	3.1.1	The concerned authority will be requested for the preservation of the open spaces of Government, semi government, school, police and army by designing the open spaces with water supply, toilets, electricity and

					tents.
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1.7 Urban Development and Public Construction Area

	Policy		Strategy		Implementing Strategy
4	The public lands in the metropolitan area will be preserved for the purpose of urban development.	4.1	Plan preparation will be carried out for the preservation and utilization of public open lands.	4.1.1	Updating of listing of public lands will be done
				4.1.2	Implementation of preservation and utilization of public open spaces will be done by preparing plans
				4.1.4	The public lands will be developed for the utilization in the probable disaster management

1.11 Environment Preservation, Greenery Promotion and Urban Beautification area

	Policy		Strategy		Implementing Strategy
3	Greenery will be promoted in the areas of open spaces, public lands, road edges and river banks by doing proper utilization	3.1	Greeneries will be promoted by working together with the stakeholders under public private partnership.	3.1.1	Relevant study will be done for finding out the actual situation of these lands.
		3.2	The citizens of KMC should make the activity of planting trees in the private or the designated lands by KMC as campaign.	3.2.1	The conduction of tree planting activity as a campaign will be implemented by preparation of plans.
				3.2.2	The campaign of two trees in each house will be conducted for promoting the greenery.
		3.3	Greeneries will be promoted in the usable lands of open spaces, public lands, roads and road edges, river banks of KMC jurisdiction.	3.3.3	Gardens will be created in the areas where the local community can preserve and promote.
				3.3.5	Feasibility study will be done for developing new gardens in the metropolitan area and implementation will be done as per the report.
				3.3.6	The up gradation of the public gardens will be implemented by preparing programs.
				3.3.7	Additional facilities will be given in the Rani pokhari and Ratna park for attracting the internal tourists.

According to **Environment Friendly Local Governance Framework 2013**, Indicators for Municipal Environment-friendly Local Governance, Advance Indicators, under Greenery promotion indicator

mentions Park or children's garden established and maintained in at least one place accessible to the residents and children covering sixty thousand population, Biodiversity Park, zoo etc. established within the city area and at least one urban forest established and protected within the city area.

According to **Risk Sensitive Land Use Plan 2010**, Parks and open spaces will serve as additions to the physical infrastructure in the form of recreational grounds, as well as sites for relocation/evacuation during emergency cases. One of the programs that can be pursued is to have a Network of Parks and Open Spaces. This program should identify and develop a hierarchy of parks and open spaces from the city level down to the ward level.

Task 3: Valley Wide Multi-Hazard Analysis and Emergency Management states that as a support to emergency management, RSLUP only indicates possible evacuation routes and open areas. Their suitability and availability must be ascertained by observations on the ground and further developed to cover the entire Valley. Other elements related to emergency management such as fire-fighting, shelter, critical facilities will also need to be addressed.

3.11 Case Studies

3.11.1 Case Study from National Context: Guita, Patan

Guita is a small neighborhood or tole located at eastern part of traditional city, Patan.. named after Guita Aaji, to whom Buddha first begs during Panch Daan. Mainly, the Jyapu community is dominating the area. Beside the residential realm, neighborhood is quite successful to provide public realm. Provision of lachhi, temples, bahal



Figure 10: Plan of Guita

Public Space of Guita

○ Streets

Hierarchy of street network could find in the settlement. Provision of lachhi along street makes neighbourhood interesting and functioning.

○ Religious Space

Guita has monument like Tadhi Ganesh, Chidhi Ganesh, Chaappa and Baha heritage like Pratham Shree



Mahavihar, Vasuccha shila mahavihar, Gustala mahavihar,

Figure 11: Open Space of of Guita

vedikoparisvayambhu Chaitya, Dhanyarashyakriti Chaitya in different location provide every places vibrant and energetic

- **Rest House**

Rest House make a place to interaction among old age people and bhajans making city like and active.

- **Water Heritage**

Provision of Stone spout, Well, Pond , Jahru, and public tap

3.11.2 Case study of Dhaka

This study aims to determine the physical characteristics, perceptions, and usage patterns associated with parks. The study consists of (1) selection of a sample of parks, and (2) use four types of surveys to better understand their characteristics. Therefore, the survey findings were used to recommend design improvements for one of the parks i.e: Boishakhi Khelar Math, a sports field in the Rayer Bazar neighborhood.

The selection of parks was undertaken in an ad-hoc manner, but nonetheless features a variety of spaces: city parks, neighborhood parks, and sports fields. City parks are often larger, and generally boast organized outdoor recreational facilities. They are used by city residents more broadly speaking. By contrast, neighborhood parks are often smaller than city parks, and typically serve the local community more than city residents as a whole. Sports fields, also known as "khelar math" are parks primarily used for sports—in particular, football, cricket, and badminton. In order to better understand the 12 parks, four types of surveys were done:

- General Public Survey,
- Park User Survey,
- Direct Observation Park Survey, and
- An Activity Survey.

General Public Survey was done

- To understand whether and why people visit parks.
- To understand what changes would encourage them to visit (or more frequently visit) parks.

Park User Survey was done

- To ascertain which activities are undertaken by users of parks,
- To know benefits they gain from doing so, their perceptions of current conditions, and their suggestions for improvements.

Direct Observation Park Survey was done

- To gather direct observation information about the characteristics of the parks and available facilities.
- This survey focuses on the physical environment, in terms of what facilities are offered.

Activity Survey was done

- To understand the location and type of activities that takes place throughout the day in the parks.

Parks are of vital importance to urban dwellers, yet they are too often neglected. Priority must be given to the improvement of these spaces, so that they can fill their role as places of relaxation, interaction, and active recreation for people of all ages, genders, and activity limitations. This study is part of a larger initiative to enhance and expand the network of such spaces in Dhaka. The study has the major findings and recommendations as follows:

- **Prioritize walking over other transport modes**

The study recommends the use of traffic calming and parking restrictions to simultaneously:

- Increase safety for pedestrians, cyclists (including rickshaws), and transit-riders,
- Provide more convenient access for these same people, and
- Reduce noise pollution.

- **Provide ample furniture, shelter, and shade**

The study recommends providing ample furniture, shelter from rain, and shade from sun in all parks.

- Furniture should include both benches and tables.
- Shade may come in the form of trees, but shelter from rain should be less permeable, e.g. large umbrellas, gazebos, etc.

- **Explicitly cater to all ages, genders, and activity limitations**

The study recommends catering park infrastructure and activities to all ages, genders, and activity limitations. Such as:

- organizing women-only activities, e.g. women's bike rides, or
- Providing infrastructure better-suited to elderly and disabled people, e.g. flat, well-maintained walking paths.

- **Engage the community**

The study recommends incorporating community engagement into all planning and implementation stages of park design and maintenance.

- **Plan for maintenance**

It is important to plan for maintenance.

- Furniture, playground and sports equipment, toilets, and water taps need to be checked and repaired regularly. Secondly,
- The sports field, green spaces, and landscaping (including groundwater recharge points) need to be maintained. Third,
- The grounds, toilets, and waste bins need to be cleaned continually.

These tasks ensure that parks retain their enhancements after initial interventions are made.

3.11.3 Case study of Kampala (Uganda)

Two studies were conducted in Kampala that examined public spaces. The first study, conducted in 2014, identified the number of formal parks and open spaces – those spaces recognized by the government. The second study, conducted in 2015, involved a sampling of 10 slums, two for each of Kampala's five divisions, and identified the informal spaces slum dwellers used for recreation. Informal open spaces are similar to parks and other kinds of publicly-accessible open spaces. The findings of the studies were based on direct observation and focus group discussions.

There is a lack of formal public parks and open spaces in the city, particularly in outlying areas and slum settlements. This has led to people using informal spaces that are not protected. The preservation of informal open spaces is under continual threat from encroachment and redevelopment. In order to protect and preserve these spaces, more community engagement is required.

As a result of the studies the following recommendations were made:

1. Engage with owners of informal open spaces to arrange schemes that ensure the preservation and management of the open spaces.
2. Work with local communities and organizations, Act together in order to create a plan to enhance, manage, and maintain the informal open spaces.
3. Establish a policy framework, along with enforcement mechanism, for non---recreational activities (activities of daily living, vendors, dumping) in open spaces.
4. Local organizations should engage in a communication strategy to explain the importance of parks to the public, as well as bureaucrats and elected officials.
5. Develop a strategy to encourage women, children, and the elderly to use open spaces.
6. Kampala Capital City Authority should prepare a park master plan and ensure all areas of the city have access to parks and open spaces.

Chapter 4. CASE STUDY

The study of public open spaces will focus on the study of courtyard settlements (Bahaa, Bahaal), open spaces in new development areas, public parks, playgrounds and squares (durbar squares in the core area) including the water bodies within the open spaces. The selected sites for the study are Tebahal (Sankata), Yatkha Bahal, Kathmandu Durbar Square, Sinamangal Land pooling, Tudhikhel, Rani Pokhari/Ratna park and Nag Pokhari/ Nandikeswor Bagaincha, Narayan chaur.

4.1 Tebahal Sankata

Location

The Sankata Tebahal is located in ward number 22 of Kathmandu Metropolitan City. It has various important sites in its surroundings like tundikhel in the east, New road gate in the north, Dharahara in the south, Khichapokhari in the south west etc. It has various financial institutions, banks, corporate offices, residences, commercial centers etc.

History

Te Bahal (also called Raja Kirti Mahavihar) is the largest bahal in Kathmandu, Nepal. It is home to the famous deity Sankata, worshiped by both Hindus and Buddhists. Unlike other Bahals of Kathmandu, Te Bahal has two dyochhes (house for gods) indicating the existence of two bahals which were later merged into one. Wright's chronicle credits the Licchavi king Narendra dev with the building of a baha here for his guru and setting up the shrine of Sankata.

Sankata Temple is one of the holy temples located at Te Bahal, The Goddess Sankata is taken to be a form of Durga in Hindu culture. Sankata is a popular divinity who is worshipped, especially on Saturdays, to ward off bad luck and sickness. Legend has it that during the rule of the Malla King Narendra Dev, a Gubhajyu, a Buddhist sorcerer skilled in Tantrik practices, called Bandhu Ratna Bajracharya, with the permission from the king, used his Tantrik powers and brought Sankata and Yogini into two different holy pitchers and worshipped them. Later, a temple for the goddess was established during the reign of King Gunakama Dev. The deity is worshipped by Bajracharya priest. The temple complex and the bahal is very crowded during Saturdays and dashain festival.

4.1.1 Existing Scenario

The tebahal is spread over an area of around nine ropanis and has two entrances one in the eastern side and another in the south west side to Khichapokhari. Besides Sankata temple it also houses Bhadrakali temple, Heart clinic, ward office, school and Sankata club. Apart from normal activities of bahal and temple complex, highly commercial activity is prominent in this bahal. The open space is occupied by the street vendors and vegetable markets as well. It also serves as a pay parking area. Various activities are observed in the area like playing, commercial, religious activity, recreational, resting, chatting, walking, parking, awareness/ blood donation programs etc. There are no dust bins for collection of the garbage. Ward office is responsible for the solid waste management and club has provided lights in the area. Further the storage of construction materials on the open area is blocking the activities. It has public toilet facility.



Figure 12: Te Bahal with Sankata Temple



Figure 13: The Pay Parking Area

The entire area of tebahal is surrounded by three to eleven storey buildings with shops in the ground floor. The building typology ranges from traditional to modern. The floorings are a mix of brick and stone tiles. The flooring tiles have worn out and slipped out of the place and there is problem of water depositing in the floors during rainy seasons. The haphazard wires from the electrical poles are making the area unsafe. The area constitutes only hard surface without greeneries.



Figure 14: Buildings of various heights



Figure 15: Unmanaged Parking and blockade of access

4.1.2 Social Issues, Environmental and Economic Issues

The Te Bahal serves as a space for socialization where different activities like playing, walking, recreation can take place. However, there are issues of theft during the peak hours of worshipping in the temple like on Saturdays and festivals. The trend of building houses taller is making the area unsafe during the disasters like earthquake. Further the garbage disposals in the open area are polluting the space. The haphazard parking in the entire area is blocking the access and creating insecurity for pedestrians and open space users. There are issues of encroachment of the open space by the projections made from the surrounding buildings. The presence of large open space in such highly commercial area is accelerating the land value of the area. Further the open space has created economic opportunities for the locals.

4.1.3 Management

The Sankata club is entirely responsible for the management of the bahal area. The management of the crowd in the temple area, pay parking, permission for the conduction of different activities like various types of programs, feasts are organized by the club. However the ward office is responsible for solid waste management of the area. There is a good co-ordination between the locals and the club so the management is not difficult. The management receives budget from the ward budget and the funds collected from the pay parking, programs and parties. The management feels they are

unexperienced and seeks guidance for the planned development of the area. They are in a phase of preparing the master plan of the area for the sake of developing the area in planned manner.

4.2 Yetkha Bahal

4.2.1 Introduction

Location

Yetkhabahal is situated in western part of Kathmandu Valley, aligned with commercial road to kilagal and indrachowk. Literally *Yetakha* in Newari is “west” and “Baha” means Buddhist monastery. It is also known as “Bhaskar Kirti Mahavihar”.

History

Yetkha bahal must have been an early-established vihara, because the tympanum (torana) represents one of the earliest extant woodwork in Nepal. Here, the geometrical continuous space is giving place to a discontinuous and heterogeneous space where the central point i.e. a *Chaitya*³ is an essential element. Cluster of houses surrounds the religious monument forming a settlement and binds the multicultural society in a common thread.



Figure 16: Yetkha bahal complex

Upon entering the narrow dark alley leading to the bahal, one is surprised to find such a big open space, brightly lit with the rays of the sun and bustling with activities. This is in stark contrast to the street outside. It is amazing how the different activity of people in the courtyard reflects their culture, lifestyle and their behavior depicting typical neighborhood squares.

4.2.2 Existing Scenario

The baha is built around the courtyard as one of the largest baha, measuring around 47m², surrounded by residential dwelling with a large chaitya, reminiscent of Swyambhu maha chaitya in the center. The baha consists of shrine, Agamchen/ Kwapa-dyo chen located in the ground floor room of a building opposite the entrance. It is a semi- public square which is connected to the neighborhood square through an under passage leading to Yetkha Chowk (public neighborhood square). The mixture of traditional and new buildings borders the square.

The dwelling units exhibit both traditional and modern building styles. The row of houses surrounding the *Baha* Square is organized around their small private courtyards. These courtyards are often marked by a well for water supply and small kitchen garden known as ‘keba’. The various houses of the baha have different use ranging from wood crafting and carpentry, workshop for *Sanjhya* (traditional window type with detailed wood carving).

³ A Buddhist cult object modeled on the *stupa* (the primary cult object of Buddhism in Nepal and elsewhere originally a simple mound entombing sacred relics, now greatly elaborated) but generally much smaller



Figure 17: Bahal with surrounding buildings



Figure 18: Bahal with surrounding buildings

4.2.3 Social, Environmental and Economic Issues

The rectangular courtyard of baha is used for various social and cultural activities. The social activities range from marriage feasts, religious and cultural feasts and social gatherings. The baha also catered the leisure activities (sports, group gathering and chatting) for youngsters from within and from the immediate surroundings of *baha*. The courtyard is mainly used by children, old age inhabitants for playing and for spending leisure time. The baha is also used for sun basking for women, infants and old people from within and from nearby, husk drying and various other purposes. The spacious baha seems to be of a great use by its inhabitants. The raised plinth of the houses and that of chaitya is used mainly by women belonging new resident group for the sun basking, oil massaging for infants in early afternoon.

At present, the physical morphology is largely undergoing changes due to the rapid socio-economic changes. Most evident physical changes can be noticed in terms of the vertical extension of buildings up to 6 storey from original 3 storey using modern materials. The vertical division of the buildings (due to joint family becoming nuclear and dividing the ancestral property vertically among the family members) is being done, which has created loss of architectural character.

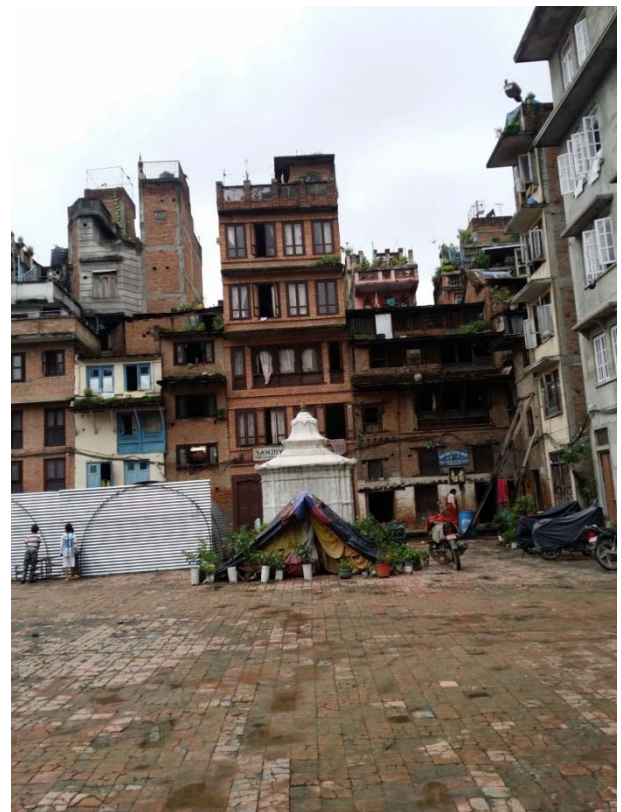


Figure 19: Bahal area with social space

4.2.4 Management

The management of the baha is carried out by Yetkha Bahal Sudhar Samiti, which was established in 2066 B.S. the samiti is responsible for the solid waste management and cleaning of the baha premises.

4.3 Kathmandu Durbar Square

4.3.1 Introduction

Location

Kathmandu Durbar Square one of three Durbar (royal palace) Squares in the Kathmandu Valley in Nepal, all of which are UNESCO World Heritage Sites is situated within two minutes of walking distance from New road.

History

The preference for the construction of royal palaces at this site dates back to as early as the Licchavi period in the third century. Even though the present palaces and temples have undergone repeated and extensive renovations and nothing physical remains from that period. Names like Gunapo and Gupo, which are the names referred to the palaces in the square in early scriptures, imply that the palaces were built by Gunakamadev, a King ruling late in the tenth-century. When Kathmandu City became independent under the rule of King Ratna Malla (1484–1520), the palaces in the square became the Royal Palaces for its Malla Kings. When Prithvi Narayan Shah invaded the Kathmandu Valley in 1769, he favored the Kathmandu Durbar Square for his palace. Other subsequent Shah kings continued to rule from the square until 1896 when they moved to the Narayan Hiti Palace.

4.3.2 Existing Scenario

The durbar square is spread over an area of 42 ropanis of land occupying the area of 19, 20, 23 and 25 wards of KMC. The area is currently totally disturbed due to the damage of traditional monuments during April 25, 2015 earthquake. There are fencings provided around the totally damaged structures. The damaged structures are getting more vulnerable due to monsoon season. Apart from these situations durbar square still has number activities like religious, commercial, socialization, walking, sitting, tourist site seeing etc. Various programs like exhibitions, blood donation programs, concerts etc. used to be conducted inside the square but after earthquake all are prohibited and are shifted to southern side road. The square constitutes ticket counters, rest rooms, enquiry and site office for the Hanuman Dhoka Durbar Square Conservation Program apart from other facilities and activities. The vehicle entry is restricted from 7 am to 7 pm in the area.



Figure 20: Durbar Square



Figure 21: Fencing in the restricted areas

The area is surrounded by traditional and modern buildings of 5 storey height. The area has mix of stone and brick paving. The area constitutes only hard surface and lack greeneries. There are solar lamps for lighting in the area. Dust bins are provided at different locations and are collected by KMC.

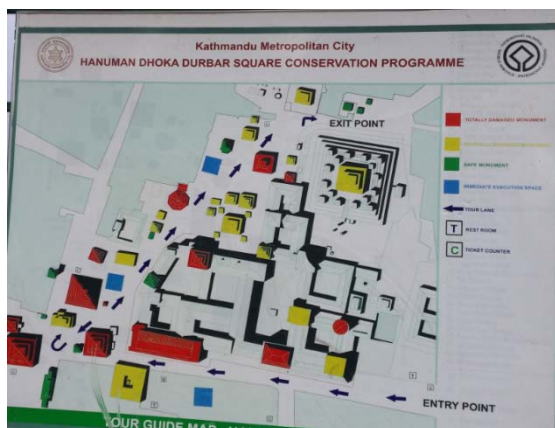


Figure 22: Board showing the extent of damages and evacuation areas



Figure 23: Buildings surrounding the durbar square area

4.3.3 Social Issues, Environmental and Economic Issues

The square has been a place for socialization from ancient times. Different festivals like Indra Jatra, Seto Machindra Nath festival, Dashain festival are the major festivals from past which held an important activity in the area. Besides these numbers of other activities like social programs, exhibitions, awareness programs also take place within the area. The debris and deteriorated monuments are producing negative impacts on the environment of the area. Further the growing commercial activities are also polluting the environment. The presence of huge open space has encouraged the commercial activities in the area.

4.3.4 Management

Kathmandu Metropolitan City Hanuman Dhoka Durbar Square Conservation Program and Hanuman Dhoka Durbar Herchaha Adda under Department of Archeology is responsible for management and maintenance of the area. Before earthquake these bodies were working separately but after the earthquake they are working jointly dividing their responsibilities. They have taken over charge of different monuments for renovation and construction. Currently they are busy in the renovations of monuments rather than organizing the open spaces. The infrastructures are installed and repaired by their own resources. The institution is responsible for the management of bahals of 19, 20, 23 and 25 wards. They have mobilized a budget of 50 lakhs for each bahal last year. According to one of the officials of the KMC Hanuman Dhoka Durbar Square Conservation Program, there is no co-ordination between Kathmandu Metropolitan City Hanuman Dhoka Durbar Square Conservation Program and Hanuman Dhoka Durbar Herchaha Adda.

4.4 Tudikhel

4.4.1 Introduction

Location

A massive green field in the Kathmandu city center known as Tundikhel. The field flanks the entire side of the old city and it is used by the public for a number of different events. Tudikhel is a large grass-covered ground in the center of Nepal's capital Kathmandu and one of its most important

landmarks. The field is rectangular in shape and has a north-south orientation. It lies between Ratna Park in the north and Sahid Gate, the memorial dedicated to the martyrs of 1941, in the south.

History

The name of Tundikhel is formed from Newari words “Tun: khya” (Tunawanyon which means quick sand). In ancient period it was a place from where the water of “*Kyan chhan Puukhu*” (means pond for morning worship which is now known as Khachha pokhari now a days) drainage out and “*Pako*” means the edge of Pond which is still remain the name as Pako New road. From this later it is known as Tundikhel. In Rana period this ground was used as parade ground and then after the big open ground where parade was practice had name as Tundikhel.

Henry Ambrose Oldfield, British resident surgeon in Kathmandu, wrote in his 1850s book *Sketches of Nepal* that Tundikhel originally spread from where Rani Pokhari is today in the north to where the Dasharath Stadium is in the south. He estimated that it measured two-three miles in length and about 300 yards in width, making it one of the Asia's biggest parade grounds at that time.

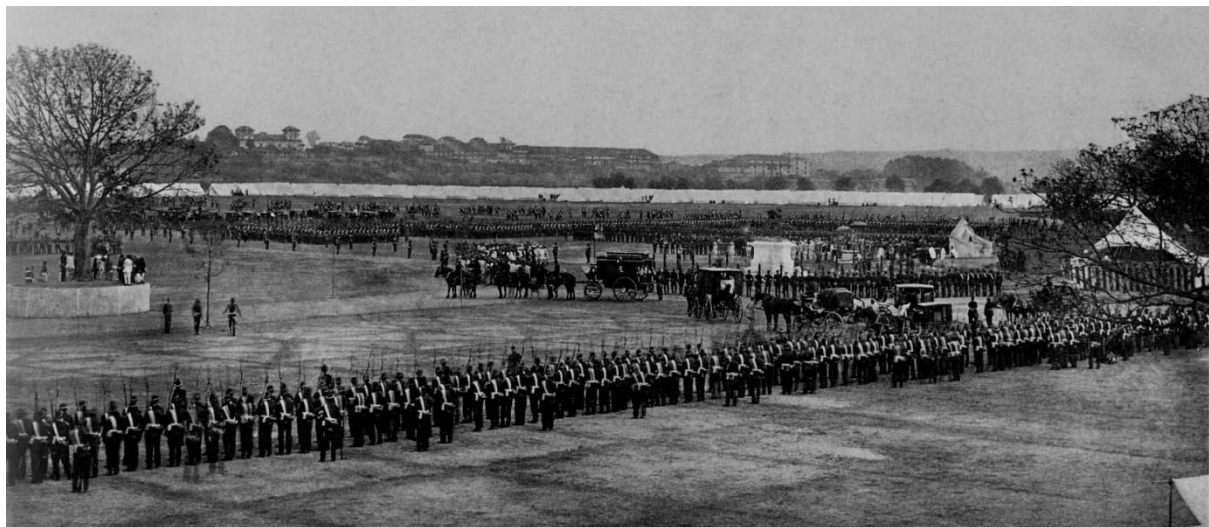
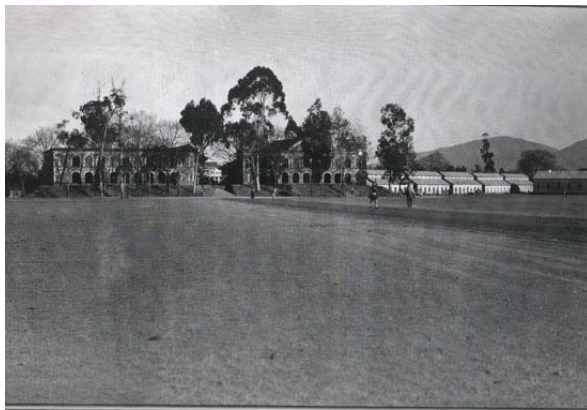


Figure 24: Photos of Tundikhel on Rana Period (source P Hada)

4.4.2 Existing Scenario

The Tundikhel is divided into five parts according to the use of this space starting as Ranipokhari, Ratna Park, Khula Munch (Open stage), Tundikhel area and Tundikhel under Army area. Tundikhel ground area further divided into two part one is Tundikhel army restrict area with army pavilion with

two grand entrance, and Tundikhel public area with one grand entrance and provision of two other entrance from south and east. The entrance from west is used for access to Tundikhel. Much more the place celebrates our national festival and events but there is not proper access for all the people to enjoy the festival and occasion. The Political event makes its own history in this open space.

Tundikhel is surrounded by lot of landmarks and historical buildings which also have the value of nationality. Tundikhel being a large open space it contains lot of variation of activating edges which includes:

- BhadraKali Temple
- Dharahara
- Mahankalsthan
- Commercial Hub:Malls (Kathmandu Mall and Civil Mall)
- Bir Hospital
- Ranipokhari
- Durbar School
- Tri Chandra College and Clock Tower
- Ratna Park

It contains beautiful master piece of architecture like Rani Pokhari. There are master piece sculptures of Rana prime ministers which are also put in the corner of the Tundikhel but have lost its value. Towards the north from the gate, we can see the Mahankal temple on the right side. Further, to the right Bir Hospital is located which was established by Bir Shamsar. Towards the north Rani Pokhari lies on the right side in front of Durbar high school. Similarly, along the south lies Ghanta Ghar, Jame Mosque (Big Mosque), City Hall, tourism Board, Bhadrakali and military head quarter.

4.4.3 Social, Environmental and Economic Issues

Tundikhel public open space is clear ground where none of facility and design is provided. Toilet facility is out of its boundary area and water and other snacks are facilitated by informal vendors through children on hand from the outside boundary area. Accessibility of this site is also very poor. Only one entrance is open for public without provision of parking which is from the west only. Even this entrance is also not welcoming and vendors cover the entrance. Beside all, this space is also used for many different events too and left behind lot of waste product and none of the authority is maintaining. There is no facility of any benches in the area and even no light. Therefore use of this site is dependent on sunlight only.

KhulaMunch is not properly define for its use and used for political reason and also for the some cultural practice too. As space is not defined, vendors and drivers are using this site. Mostly evening time it is used by informal vendors. Also to clear parking around Bir Hospital area, this site is choosen as parking space. Accessibility to this site is also very poor and ground maintenance is also poor. In rainy season, due to absence of proper slope and drainage, water is trap on the field in this site.

Toilet is not enough in nos. as well not maintain and that can be seen in Tundikhel. Placing of toilet is not so define and that may be the reason that every corner and possible space is fill by this characters.

Ranipokhari, Tundikhel Army control area and army restriction area have no accessibility to public and well maintain area. Ranipokhari is one of the landmark of the Kathmandu valley and still famous for its attractive and distinct character.

It sheltered national disaster Earthquake of 1990 B.S. and Gorkha Earthquake 2072 B.S, therefore, can still stand for only available shelter if any similar kind of disaster occurs.



Figure 25: Shelters during 1990 earthquake
(source: P Hada)



Figure 26: Shelters during April, 2015 earthquake

4.4.4 Land use Change:

The land use change in the Tundikhel area has taken place with the pace of development in the area. Hence, the development stages of the area can be categorized into the following time frame,

- According to historian in 1935 BS Prime minister Randip orders to clear an open ground from Rani Pokhari to Dashrath Stadium.
- The important of Tundikhel was understood during the earth quake on B.S. 1990. It sheltered more than a month to the people who were made homeless by that earthquake.
- With the change of political scenario on B.S. 2007, Tundikhel was divided into two parts on BS 2015 with the development of road and structure built as 'Nepal Smrak' later known as Sahid Gate.

- In BS 2013 Tundikhel south west part was change to Dashrath stadium losing of two lotus ponds.
- In BS 2017 Army observation structure was built on the middle of Tundikhel and also Bagmati Zonal Office near to Ranipokhari.
- In BS 2026 King Mahendra directed for the construction of Ratna Park on the name of his Queen supported by India for development.
- Bagmati Zonal office was destroyed in B.S. 2046 but the new structure of Police Headquarter was built.
- In BS 2058 Mayor Keshab Sthapit Tried to clear unwanted structure from this area and was successes.
- In BS 2062 *Mukti Yog Dhyana Pratishthan* is utilizing east south corner of Tundikhel ground for morning session for free yog sadhana. For same purpose the east south corner gate is open in morning time only for the better access of the place.
- In BS 2063 *Ganesh Man Singh* & People's Movement Martyr's Memorial Peace Garden work was start at Ratna Park, and was finished on BS 2064 and inaugurated by Prime Minister Girija Prasad Koirala.

The rapid land use change has brought in immense impact on change in transport use. During Ran period the construction and development of palaces and civic spaces gave rise to the change in transport uses from the southern corner (Sundhara) via western side of Tundikhel then north eastern to the southern corner towards Singh Durbar.

The integrated Tundikhel exposed to fragmentation physically by creation of tracks and roads. The fragmentation was carried out for new & specific uses. It was divided into three major segments, namely

1. Ratna Park
2. Khula Munch
3. Army parade ground

The road expansion linking Major places to the settlement area got continued. By doing so, Old road grids are intersected and portion lost and new roads added. The extension of road according to the requirement had been carried out for different purposes. The new road had been reconstructed, after the great earthquake of 1930 AD. Land use changes around Tundikhel area increase the volume of the people to move in and out through this area.



Figure 27: Scenario of RNAC public transit node, in 1995 and 2010 (source: P Hada)

4.4.5 Management

During the Malla period, Tundikhel was a vast open space maintained by the rulers for social and cultural events, including Ghode Jatra and Dashain celebrations. The demands of modernization, and the need to legitimize Rana rule slowly constricted it from all sides. "Encroachment of Tundikhel started when the rulers started garnering military power. They overlooked its social and cultural significance and made it out of reach of the communities in order to use it to their own benefit," explains Bal Dev Juju, an expert on Newar culture. Tundikhel was turned into a parade ground for the Nepali army as early as the mid-1830s, towards the end of Bhimsen Thapa's premiership, and Jang Bahadur reinforced this new use of the space, but it was Bir Sumsher, who proclaimed himself prime minister following a coup in 1885 and turned Tundikhel fully over to military use.

In 1961/62, the US government helped support a food-for-work program which was used to divide Tundikhel into three separate parts and fence them off. Ratna Park and Dasarath Stadium were built, squeezing in Tundikhel from the north and south sides, and so was Shahid Gate. Lately, the Royal Nepal Army built an officer's mess against public opinion and until late 1992 the space adjoining the Khulla Munch was allocated for a flea market.

The DUDBC has fenced Tundikhel in three phases which will help to stop further encroachment of Tundikhel. The department estimates that the space will be able to accommodate 300 tents during large-scale emergencies.

4.5 Ratna Park

4.5.1 Introduction

Location

Ratnapark is one of the valleys' iconic park situated at the center of the Kathmandu city. The park is located between Tudikel and Ranipokhari.

History

The heart of Kathmandu city there only one green park named after the then Queen Ratna the second queen of King Mahendra. Park construction started in 1962 and completed in 1965 and was built for the children. Initially it spread over 42 ropanis, following road construction around it. It is situated between Rani Pokhari and Tudikhel in the heart of Kathmandu.



Figure 28: Park Entrance area

4.5.2 Existing Scenario

Ratna Park remains one of the few public places left in the heart of Kathmandu. The park is fenced with 4 gates, 1 in east, 2 in west and 1 in south. The boundary of the park is provided with the hedges. It consists of two ponds, one as we enter the park i.e. near the entrance gate and other at the east corner of the park. The park provides play area for the children separately with swings and other facilities. Different shades and benches are also provided within the park for visitors.



Figure 29: Activities inside park premises



Figure 30: Children playing inside Park

The park is surrounded by different landmarks and historical buildings. Rani Pokhari lies on north, Bir Hospital at west, Ghantaghar at north east and Bus park at east of the park. Ratnapark is surrounded by the roads that have been developed in different eras as per the demand and necessity of the city.

4.5.3 Social, Environmental and Economic Issues

In the past, the park had been a mess as it was littered everywhere and street vendors used to run their shops inside. The area had also earned notoriety as a meeting point of prostitutes and drug users. "Before renovation, people hesitated to visit this area as visitors were seen negatively.

The park was reopened on 2072/3/15 with a complete facelift. Previously, park was opened for all without any entrance fee but after reopening, the park charges entrance fee of Rs.25 for adults and Rs.15 for Students. KMC had spent Rs 8 million in renovating the park and have employed 12 workers for its regular maintenance and security surveillance. The park opens seven days a week, from 8am-6pm in summer and 8am-5pm in winter.

Addition of these amenities to the park helped in attracting more visitors. Around 800 people visit the park a day, 25 percent of the visitors are student. Once the park was a hangout for the jobless, drunkards, drug users, prostitutes, the park has put behind its messy past, and according to Harisaran K.C of KMC, People's perception about Ratna Park has changed now. The park is a buzz with lots of families on public holidays."

The metropolis is planning to open a café and install a Wi-fi router in a month to provide free internet service to the visitors. "We have already designed a map of the café and will call for tenders. We are almost ready to offer free Wi-fi facility," Also on the metropolis's list are plans to upgrade the park's greenery and turn it into a more child-friendly facility. "Sanitation inside the park is one of our main concerns," said Harisharan KC, unit chief of Ratna park and Ranipokhari of KMC's Environment Division.

4.5.4 Management

The management of the park is done by KMC itself. The cleaning of the park including toilets is done in the morning as well as at the evening time. Security guards are appointed for the safety of the visitors within the park. Dustbins are provided at different locations for the visitors.



Figure 32: Dust Bins Provided



Figure 31: Park rules

4.6 Rani Pokhari

4.6.1 Introduction

Location

Rani Pokhari originally known as Nhu Pukhu meaning new pond, is a historic artificial pond located in the heart of Kathmandu. The square-shaped tank dates from the 17th century, and was built on the eastern side of the then city limits. It lies just outside a former city gate. The pond is one of Kathmandu's most famous landmarks, and is known for its religious and aesthetic significance. Its dimensions are 180m by 140m.

History

Rani Pokhari was built in 1670 AD by King Pratap Malla, one of the most illustrious monarchs of the Malla dynasty that ruled Nepal for more than 600 years. Pratap Malla had the tank constructed to console his queen who was distraught with grief after their son was trampled to death by an elephant. He had water collected from various holy places and river confluences in Nepal and India like Gosaikunda, Muktinath, Badrinath, Kedarnath and poured into the pond to sanctify it.

4.6.2 Existing Scenario

A temple dedicated to Matrikeshwor Mahadev, a form of the Hindu deity Shiva, stands at the center of the pond. It is reached from the street by a causeway. A large stone statue of an elephant bearing the images of Pratap Malla and his two sons Chakravartendra Malla and Mahipatendra Malla is situated on the tank's southern embankment. The pond is recharged by water flowing in through an underground channel.

There are four smaller temples situated at the four corners of the pond: Bhairava temples in the northwest and northeast, Mahalaxmi Temple in the southeast and Ganesh Temple in the southwest. The temples on the eastern side now lie within the compounds of Tri Chandra College and a police station which has undermined their cultural importance.



Figure 33: Ariel View of Ranipokhari

Rani Pokhari is surrounded by historical buildings and famous structures. The clock tower Ghantaghar is situated across the road on the eastern side of the pond. It stands on the premises of Tri Chandra College, the first college in the country which was established in 1918 AD. On the western side of Rani Pokhari stands another historical building, Durbar High School, built in 1854 AD. It is the first school in Nepal providing education along modern lines. Tundikhel, a parade ground and ceremonial grass field and a Kathmandu landmark, formerly extended from the southern side of Rani Pokhari. A section next to the pond was fenced off and converted into a public park and flower garden in the mid-1960s i.e. Ratnapark.

4.6.3 Social, Environmental and Economic Issues

Rani Pokhari is fenced with iron bars and opened once a year during Bhai Tika, the fifth and final day of the Tihar, and Chhath festival. The world's largest Chhath festival takes place every year in Rani Pokhari. Rani is also dedicated to (Nepalese Maithil) Women who goes into the cold water and pray to sun god.

As Chhath festival has been granted to be performed in the pond and due to the waste during Chhath the cultural importance of pond has been degraded.



Figure 34: Reconstruction ongoing in Rani Pokhari



4.6.4 Management

The management of the Pokhari is done by KMC itself. Recently, due to the Gorkha Earthquake, the whole complex has been severely damaged. Therefore, the reconstruction plan has been prepared and the work is on progress. The KMC officials said they have planned to complete the renovation by the next year's Bhai Tika festival. Besides rebuilding the shrine, the KMC also plans to clean Ranipokhari. The pond has not been cleaned for nearly 350 years.



Figure 35: Reconstruction ongoing in Rani Pokhari

4.7 Nandikeswor Bagaincha, Narayan chaur

4.7.1 Introduction

Location

The oval Shaped Nandi Keshwor Bagaicha popularly known as Narayan Chaur is stretched in an area of about 20 ropanies, is located at Naxal, at the heart of Kathmandu valley. The surrounding area has a high traditional and cultural significance with historical Narayanhiti Palace Museum, located on the west side and Nagpokhari Pond on the south side. Further the site is adjoined by the Sama Marga on the north side where the visa application center for Australia, Canada and Denmark is located. The east side of the garden is occupied by a vegetable market and Shankha Kirti Mahabihar. Various banks, financial institutions, corporate offices, police headquarters and residences of high profiles are situated around the premises of the garden.



Figure 36: Location

History

The garden holds a historic heritage and was known as Nandi Keshwor Bagaincha during the 6th century. The Nandi Keshwor temple was built in 1858 B.S. by then queen Subarna Prabha Devi (second wife of King Rana Bahadur Shah). The garden is one of the Guthi land holdings of the temple. The queen used to worship in the Nandi Mahadev Temple using flowers from this garden and hence the garden was named Nandi Keshwor Bagaincha.



Figure 37: Nandi Keshwor temple

Even though the space has been adopted for modern times, the preservation of the temple, the surroundings and the garden area were neglected for many years. This was brought into attention by Mr. Narendra Bahadur Shrestha (Chairman of the Community Service Center Naxal), and the efforts were made for the revitalization of the garden area. Community Service Center Naxal, Narayan Chaur is a social organization dedicated for the development of society working in association with community police. The Bagaicha has been neglected and deserted for a very long period. It has not only become an environmental and health hazard but had also given an ugly look to the city.



Figure 38: Existing situation before revitalization

4.7.2 Existing Scenario

The Nandi Keshwor Bagaincha area constitutes approximately 20 ropanis of land. The famous Nag Pokhari is present near to the Bagaicha along with the various important properties of public concern like four hospitals, 15 education centers and four police stations around 1 km distance. The garden was revitalized in 2072 B.S. and is specially targeted to provide a dynamic public space, with reduced acoustic disturbances, prevention of water logging and allowance of ground water recharge. The park is designed disable friendly with provision of ramps in the all four entrances. Mounds have been created to reduce acoustic disturbance and achieve minimal visual barrier and sound diversion. Trees have been planted all around the garden which acts as a medium to filter the air and sound. Trees under existing electrical lines have been relocated within the park. The concept of the garden has

Figure 39: Plan of the Park



Figure 40: Existing Park

The central area has been left open for multipurpose use such as playground for children, recreational area for youth and resting space for elderly as well as for the purpose of disaster management. Sitting areas have been created for children and elderly. Nepal Telecom has donated six solar lamps and the benches for the park. A walk way has been constructed around and connected with four access point at north, south, east and west. The park is especially designed to help ground water recharge and decrease air pollution. It has garbage disposal provision with separate bins for biodegradable and recyclable wastes along the entrances and at regular intervals within the park. It is one of the first of its kind that is envisioned to be utilized as an emergency rescue space during a disaster. The place has been used extensively in the April 25, 2015 earthquake. The design includes the construction of recharge well, grease chamber, rapid sand filter and soak pit. Further an acupuncture track is in plan.



Figure 41: Children's play area



Figure 42: Disaster rescue equipments and garbage bins



Figure 43: Shelter during April 25, 2015 Earthquake

The garden is surrounded by various types of buildings like commercial, residential etc. of up to 11 storey high. The access road to the garden is wide enough so the garden finds to be safe from these buildings.



Figure 44: Built forms around the Park



Figure 45: Built forms around the Park

4.7.3 Social, Environmental and Economic Issues

The park has been serving people of different age group from children to elderly people. The place has become a hub for social interaction and promotion of citizen engagement in preserving cultural heritage. However youths in the area are not satisfied as they also expected to play football but it is prohibited for the cause of safety to the children and elderly. Further the park is designed as a health park which can be used by people of all age groups for leisure, morning/ evening walk, children play ground, yoga etc. The park has positive environmental impact on the surroundings since it is designed with a provision of ground water recharge and oxygen supply. It is also a probable space for disaster rescue area. The park will act as a catalyst for future residential and business development. The revitalization of park has accelerated the land value of the surroundings.

4.7.4 Management

The Nandi Keshwor Bagaicha is a good example of the open space that has been revitalized which was in dilapidated condition and now being managed well by the Community Service Center. Narendra Bahadur Shrestha, Chairman, Community Service Center, Naxal stresses that the success has been achieved because of the joint effort of Community Service Center, community police, Civil Society and Kathmandu Valley Development Authority with an initiation of Community Service Center. The park is cleaned twice a week by the involvement of fifty numbers of police. The Community Service Center allows the awareness programs in the park but no other programs are entertained in the park.

4.8 Sinamangal Land Pooling

4.8.1 Introduction

Location

Sinamangal land pooling is located at Ward No. 35 in the eastern side of KMC. Its surroundings are Koteswor, Gothatar, Nhykati, Thimi, and Tribhuvan International Airport.



Figure 46: Location Map (Source: S Shrestha)

History

Sinamangal Land Pooling was started in 1995 under Town Development Committee (TDC) Act 1988 in order to control the haphazard urban growth of Sinamangal and to meet the increasing demand of urban housing. It was completed in 8 years in 2003. The total project area was 36 ha, with a total no. of plots 1070, with an initial land owner's no. 964. The implementing agency of the project was TDPIC.

4.8.2 Existing Scenario

The land pooling area has block wise open spaces in the five places.

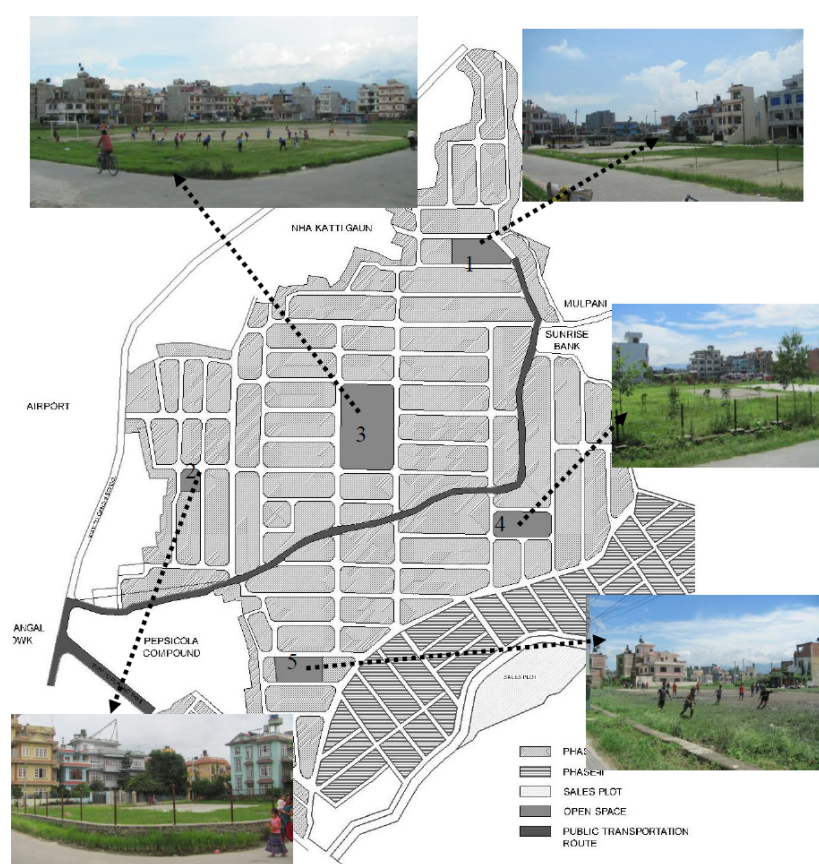


Figure 47: Public Open Spaces in Sinamangal Land Pooling (Source : S Shrestha)

Open space	Area	Features	Ownership/Maintenance
Block I	4-11-0-2	Basketball+ Badminton Court + Bus Park	TLO
Block II	1-11-1-3	Badminton Court	Playing Groups
Block III	16-15-2-2	Large Football Ground	Club
Block IV	4-13-3-1	Suryamukhi Park+ Badminton Court	TLO
Block V	4-14-0-2	Mini football + cricket ground	None

(Source : S Shrestha)

The large football ground is under maintenance currently. Besides sports, various activities like walking, jogging, sitting, resting etc. take place in the playground area. The surrounding areas of the open spaces include residential and commercial activities. Except football ground other open spaces have controlled access in the morning and evenings only. The open spaces lack basic amenities like proper floor, public toilets, sitting areas, dust bins etc. The garbage is managed by the street vendors. They clean up the football ground every week.



Figure 48: The Football ground



Figure 49: The Garden

The open spaces are surrounded by 6m wide road and 3 to 4 storey buildings. The grasses in the ground are unmanaged. The food stalls around the area is polluting the grounds.



Figure 50: The Ground surroundings



Figure 51: Ground surroundings

4.8.3 Social, Environmental and Economic Issues

The people from the locality use the open spaces for playing, walking, jogging, socialization etc. The controlled access is observed due to the insecurity of open spaces by damaging the infrastructures of the area and polluting in the area. The commercial activities are polluting the environment of the open spaces by disposal of the food items and the plastics. The increasing commercial activity due to the presence of plenty of open spaces has amplified the land value.

4.8.4 Management

The management of the open spaces are done by the clubs, playing groups, TLOs etc. Recently the Open Space Management Users Committee formed under District Development Committee is working actively jointly with the clubs and TLOs for the proper management of the open spaces. The Users Committee is currently involved in the up gradation of the football ground. They have managed to get fund of nine lakhs from the DDC, Parliament development fund for the construction works.

Chapter 5. ANALYSIS AND RESULTS

5.1 Problems and Issues

- Controlled access in most of the public open spaces.
- Lack of land for developing open spaces
- Problem of byelaws violation
- Lack of landscape features, less functional open spaces
- Lack of coordination between street spaces and open spaces
- Encroachment of open spaces through new constructions especially in traditional open spaces "baha" like: cantilever projections, extension of shop-fronts etc.
- Most of the traditional open spaces are utilized for the parking facility including commercial activities so the open spaces are overcrowded of lots of activities resulting in the lack of space for recreational activities
- Lack of physical infrastructures associated with the public open spaces like toilets, drinking water facilities, sitting spaces, trash bins etc.
- Difficulty in maintaining parks and public open spaces and getting fund for the maintenance.
- Planning of parks are not thought according to the population density
- Open spaces do not have provisions for disaster aids except for Nandikeswor Bagaincha, Naxal.
- Parks have issues of insecurity and vandalism.
- Uneven distribution of open spaces- In Kathmandu it is difficult to find proper open space within walking distance (i.e, 500m-800m according to most of Planning literatures)
- No design for different age groups (elderly, children)- most of the open spaces are meant for youths.
- No considerations women and disabled.
- Lack of co-ordination between the institutions responsible for the management of the open spaces.
- Lack of specific guidelines for parks and public open spaces

The study of different open spaces deals with different parts and factors related to public spaces, their relationships, utilization and benefits as well as alternative practices. The people want to come out of their room or house for entertainment, interaction and socialization. The findings can be analyzed through following comparison:

5.2 Comparative Chart (for issues of different case study sites)

Public Open Spaces	Type	Access	Activities	Time Cycle	Infrastructures	Safety/ Security	Ecological factor	Responsible body for management	Fund for management
Tebahal Sankata	Neighborhood scale	Open	Religious Vegetable market Playing Commercial Resting/ Socialization Parking	Morning Morning/ Evening Morning/ Evening Whole day Whole day Whole Day	Drinking Water: No Lighting: Yes Benches: No Rest room: Yes Walkways: No	Vulnerability from tall buildings, parking	Sound pollution and air pollution by vehicles. Air pollution by garbage disposals, construction material disposal by the local house owners, hard paving-so no/less ground water recharge, lack greeneries	Sankata Club	Pay parking, programs and parties and ward budget.
Yatkha Bahal	Neighborhood scale	Open	Religious Playing Resting/Socialization Cultural Feast Sun basking Husk Drying	Morning Whole Day Whole Day Occasionally Morning Occasionally	Drinking Water: No Lighting: Yes Benches: No Rest room: No Walkways: No	Vulnerability from tall buildings and monuments , buildings damaged from earthquake, access lane through the tall buildings	hard paving-so no/less ground water recharge, lack greeneries	Yetkha Bahal Sudhar Samiti	Local effort
Kathmandu Durbar Square	City scale, Palace Square & also a main junction of Kathmandu core	Open	Commercial Resting/ Socialization Religious	Whole Day Whole Day Morning	Drinking Water: No Lighting: Yes Benches: Yes Rest room: Yes Walkways: No	Vulnerability from earthquake damaged monuments and buildings, presence of visual surveillance	Air pollution by the debris materials, sound pollution by vehicles, hard paving-so no/less ground water recharge, lack greeneries	Kathmandu Metropolitan City Hanuman Dhoka Durbar Square Conservation Program and Hanuman Dhoka Durbar Herchaha Adda	Entry fee for foreigners
Tudikhel	City Scale	Controlled	Commercial Resting/ Socialization/sport	Whole Day Whole Day	Drinking Water: No Lighting: No Benches: No Rest room: No Walkways: No	Problems of Pick-pocketing, Drug addicts	Air pollution, noise pollution being surrounded by the heavy traffic road, grasses on the	Nepal Army	Army Fund

							ground so recharges the ground		
Rani Pokhari	Water body (ground water recharging pond), Historical Pond	Controlled	Religious, Cultural	Occasionally	Drinking Water: No Lighting: No Benches: No Rest room: No Walkways: Yes	Vulnerability from earthquake damaged monuments	Air pollution by the debris materials, sound pollution by vehicles, , water shed-controls the flood water during rainy season and recharges the ground water	KMC	KMC Budget
Ratna Park	City Scale, Public Park	Controlled	Children Playing Commercial Resting/ Socialization	Whole Day Whole Day Whole Day	Drinking Water: No Lighting: Yes Benches: Yes Rest room: Yes Walkways: Yes	Security guards provided for safety	Sound pollution by vehicles, being surrounded by heavy traffic roads Air pollution by vehicles as well, recharges the ground	KMC	Entry fee
Nandikeswor Bagaincha	Ward Scale Bagaincha, Public Park	Controlled	Resting/ Socialization Yoga Walking/ Jogging Playing (Children)	Whole Day Morning Morning/ Evening Whole Day	Drinking Water: No Lighting: Yes Benches: Yes Rest room: Yes Walkways: Yes	Community Police	Air pollution by the vehicles running in the streets	Community Service Center	Community Service Center (no mechanism for funding yet)
Sinamangal Land pooling	Both Neighborhood & Ward Scale, Park & Sport	Open/ Controlled	Resting/ Socialization Walking/ Jogging Playing/Sport	Whole Day Morning/ Evening Morning/ Evening	Drinking Water: No Lighting: Yes Benches: Yes Rest room: No Walkways: No	-	Air pollution by the vehicles running in the streets (both heavy and light traffic)	Clubs, playing groups, TLOs and Open Space Management Users Committee	Donations by locals, local effort

5.3 Comparison as per Public Space Design Principle

Public Open Spaces	Access and linkage: <i>probable center location, safe and easy access</i>	Comfort and Image: <i>feeling of belonging, security, imageability contextual, amenities and infrastructure</i>	Use and activities: <i>Vibrant to make the place lively and happening, public oriented activity as well as for emergency purpose</i>	Sociability: <i>enables socialization through activities, interaction, enhance the quality of urban community</i>	Safety and Hygiene/cleanliness	Management/ Maintenance
Tebahal Sankata	Easily Accessible from one side only,	Moderate sense of belonging due to the presence of temple Sankata.	<ul style="list-style-type: none"> - Space is used for different activities such as, commercial, playing, social gathering, parking, religious feast etc. - Space used for emergency shelter during earthquake 	Highly Sociable Space	<ul style="list-style-type: none"> - Ward office as well as sankata youth club deals with the cleanliness of the bahal - Dust bins are provided 	<ul style="list-style-type: none"> - Ward Office - Sanakata Youth Club
Yatkha Bahal	Difficult to find, narrow lane opens to the Bahal area	Moderate sense of belonging.	<ul style="list-style-type: none"> - Used for different activities: playing, resting, gatherings - Space used for emergency shelter during earthquake, still shelters can be seen in the bahal area 	Highly Sociable Space	<ul style="list-style-type: none"> - Bahal Sudar samiti is responsible for both cleanliness and safety of the bahal - Dust bins are provided 	<ul style="list-style-type: none"> - Yatkha Bahal Sudar Samiti
Kathmandu Durbar Square	Easily Accessible evenly distributed, well linkage,	Highly sense of belonging	<ul style="list-style-type: none"> - Used for different purposes and activities - Very vibrant space of the city core with interconnecting junction, - City landscape element 	Highly Sociable Space	<ul style="list-style-type: none"> - Security guards are provided - Municipality responsible for cleanliness - Dust bins are provided 	<ul style="list-style-type: none"> - Kathmandu Metropolitan City Hanuman Dhoka Durbar Square Conservation Program and Hanuman Dhoka Durbar Herchaha Adda under Department of Archeology
Tudikhel	Easily Accessible evenly distributed, well linkage though surrounded by heavy traffic road	Highly feeling of belonging	<ul style="list-style-type: none"> - Used for different purposes and activities, - Space used for emergency shelter during earthquake - Very vibrant space of the city core with interconnecting junction, - City landscape element 	Social interaction level-medium	<ul style="list-style-type: none"> - Army is responsible for the management and cleanliness of tudikhel - Dust bins are provided 	<ul style="list-style-type: none"> - Royal Nepal Army

Rani Pokhari	Easily Accessible evenly distributed, well linkage, though surrounded by heavy traffic road	Highly feeling of belonging	<ul style="list-style-type: none"> - Occasionally used for religious purpose , - City landscape element 	No Social activities	<ul style="list-style-type: none"> - Municipality responsible for cleanliness - Dust bins are provided 	- KMC
Ratna Park	Easily Accessible evenly distributed, well linkage, though surrounded by heavy traffic road	Highly feeling of belonging	<ul style="list-style-type: none"> - Used for different purposes and activities - Space used for emergency shelter during earthquake - Urban Wildlife shelter of the city especially birds 	Social interaction level-medium	<ul style="list-style-type: none"> - Municipality responsible for cleanliness - Dust bins are provided 	- KMC
Nandikeswor Bagaincha	Easily Accessible evenly distributed, well linkage, though surrounded by light traffic road	feeling of belonging	<ul style="list-style-type: none"> - Used for different purposes and activities - Space used for emergency shelter during earthquake 	Social interaction level-medium	<ul style="list-style-type: none"> - Community police, Civil Society responsible for cleanliness - Community Police are provided for safety - Dust bins are provided - 	<ul style="list-style-type: none"> - Community Service Center, - Community police, Civil Society - Kathmandu Valley Development Authority
Pepsicola Town Planning	One large central open space with 4 spaces. good linkage but not at equal distance from all part	feeling of belonging	<ul style="list-style-type: none"> - Mostly a central big open space - Space used for emergency shelter during earthquake 	Social interaction level-medium	<ul style="list-style-type: none"> - Town planning society, clubs and TLOs for cleanliness - Dust bins are provided - 	<ul style="list-style-type: none"> - Clubs, - playing groups, - TLOs

5.4 Management of Public Open Spaces

The management of public open spaces are carried out by various government institutions, private sectors, community organizations, toles, wards etc. However the study revealed that the successful management is observed in case of the community managed public open spaces with participation of the local people. The government management bodies lack co-ordination between them resulting in the duplication of works and unaware of what other organization is doing.

5.5 Policy Review for Public Open Spaces

Specific guidelines or norms for Public Open Spaces have not been published yet. The policies mention the development of open spaces and greeneries in the urban areas, the probable open space sizes in different locations and requirements for preservation of open spaces. However, as mentioned in **National Urban Development Strategy 2015**, the existing provisions are fragmented and embedded within other policies and regulations.

Government has identified number of open spaces suitable for shelter purpose in case of disaster but most of these open spaces are compounds of schools, colleges, government and private offices and other gated institutions and complexes. These open spaces could not be readily available during disasters and are not welcoming for social welfare purpose (playing, socialization, jogging/ walking etc.).

The **Land Use Policy 2072** mentions the development of the greeneries and open spaces in the residential areas of urban areas but it is unclear what mechanism will be used to provide such open spaces in the areas which lack public lands.

Urban Environment Management Guideline 2067 illustrates the various tasks to manage the open and green areas to make the urban environment clean and pollution free but there is no monitoring mechanism whether the mentioned responsible body is undertaking the assigned task.

The Bye-laws 2064 has just mentioned the open spaces sizes in different locations and demarcated the open space zones but it has not mentioned the particular penalties and punishments for disobeying the particular provision of bye-laws. Further the monitoring system is very poor.

National Urban Development Strategy 2015 has pointed out the major issues for open spaces which are listed below:

- At the national level, there is no clear and unambiguous policy regarding urban open spaces and parks. The existing provisions are fragmented and embedded within other policies and regulations.
- There is no inventory and monitoring of open space. Encroachment of open spaces is a major issue. Decline in open spaces in Kathmandu valley and other major cities owes largely to unmonitored encroachment, a reflection of poor governance.
- The types and hierarchies of open spaces within cities and time distance with respect to residential areas are other critical factors that should also be defined and designed to facilitate the planning process.

Further,

- The Policies, laws or documents mostly spells out the preservation of open spaces but it does not define clearly what preservation actually means: fencing the open spaces and constructing gates so that it is safer from encroachments or anything else.
- The policies lack the provision of preparing plans for actual public open spaces which will be suitable for social welfare and shelter during disaster as well.
- The policies lack strong implementing mechanism for the planning and protection of public open spaces.

- The policies lack the specific guidelines for public open spaces.

5.6 Key Stakeholders

Number of ministries, departments, organizations and institutions are responsible for formulating policies, plans and programs, implementation, and monitoring and evaluation. The key institutions those are involved in the planning and management of public open spaces are briefly highlighted below:

1. Ministry of Urban Development (MoUD)

MoUD is responsible for overall planning, development and management of urban areas with a vision to make urban areas and settlements managed, clean, beautiful and inclusive of proper infrastructures and services. It closely works with municipalities. **Department of Urban Development and Building Construction (DUDBC)** is a department functioning under Ministry of Urban Development which is actively working in the urban development, building and environment sector. It is responsible for formulating different policies, guidelines and byelaws.

2. Ministry of Federal Affairs and Local Development (MoFALD)

The Ministry is responsible for coordinating, supporting, facilitating, monitoring and evaluation of decentralized local development programs and activities conducted by local governing bodies- District Development Committee, Municipality and Village Development Committee, in accordance to Local Self-Governance Act (1999). The Ministry has formulated and implemented Environment Friendly Local Governance Framework (EFLGF), which is now being implemented at District, Municipal and VDC level.

3. Ministry of Land Reform and Management

In 2021 B. S. a ministry of land reform was set up with 3 directorates: (I) the directorate of land reform, (ii) the directorate of cooperatives and (iii) the directorate of Cadastral survey. In 2022 B. S. the ministry was enlarged to include three more directorates: (IV) The directorate of food, (v) the directorate of agriculture, and (VI) the directorate of Land Administration. In 2027 B.S. . It was split up into two ministries: (i) the ministry of Food and Agriculture which regrouped the directorates of Food and Agriculture, and (ii) the ministry of Panchayat, Home and Land Reform which regrouped the other Directorates. Within the latter Ministry, the Land Reform and Land Administration Directorates are more directly responsible for the implementation of the Act 2021 B.S. Since 2043 B.S., the ministry has been recognized as ministry of Land Reform and Management. The Ministry has formulated Land Use Policy 2012.

4. Kathmandu Valley Development Authority (KVDA)

KVDA was established in 2012 and the Authority has with primary mandate to prepare and implement an integrated physical development plan for Kathmandu Valley, and the apex governing body chaired by the Minister of Urban Development. It has authority to prepare related by-laws, regulating mechanisms, guidelines, standards and tools. It is working to develop public parks in the valley and many has been materialized like Nandikeswor Bagaincha in Narayan Chaur, Naxal. It has published "Atlas of Open Spaces" in 2015 which has listed all the probable open spaces in Kathmandu Valley which can be utilized during disasters.

5. Kathmandu Metropolitan City (KMC)

KMC is a local body working in accordance to Local Self-Governance Act (1999). The Environment Management Department is responsible for the management of Ratnapark, Balaju Park, Sankhapark, parks in 7, 25 and 35 wards. The Disaster Management Department has just

established in the KMC and it has started working on the identification of open spaces in the metropolitan area for preserving it.

6. Department of Archeology (DOA)

Department of Archaeology was established in 1953 A.D. under the Government of Nepal. This is primer organization for the archaeological research and protection of the cultural heritage of the country. Protection and maintenance of archaeological sites, ancient monuments including remains of national importance, museum and archive management are the main concern of Department of archaeology. Department of archaeology also regulate all archaeological activities in the country as per the provision of the 'Ancient Monument Preservation Act, 2013' (A.D. 1956) Likewise, the act also provides ample provisions to protect and preserve any individual monuments, group of monuments, sites and even vernacular edifices located throughout the country either private or public having archaeological, historical, artistic and aesthetic values. This act has authorized the Department of Archaeology as a principal governmental authority to protect and preserve the vast cultural heritage of the country. The DOA is responsible for the conservation of bahals under Heritage Monument Area section.

7. Guthi Sansthan(Temple Trust)

Guthi is a dynamic system of Nepalese Society guided by moral, ritual and traditional managerial system. Guthi system has various managerial outlooks which were introduced in our society by our ancestors, experienced at the time of king Mandev I, according to Changu Narayan temple script of Bhaktapur. This system has done attractive management for preserving ritual, traditional and cultural value in our society. In another word it is a cooperative system in modern concept and values. The purpose of establishing Guthi from our ancestors is seemed under the true religious, cultural and social spirit. In fact, Guthi is a concept of welfare and preserving ritual and cultural value according to the Guthi founder's interest.

Guthi Sansthan responsible for the management of Kalmochan, Eye hospital compound, Bhimmukteswor, Kalimati, Ranamukteswor, Triputeswor Mahadev. It will establish a management committee for the management of the temple complexes in the leadership of the priest of the temple and the temples having no management committees will have priests for management.

8. National Society for Earthquake Technology (NSET)

NSET was founded by a meeting of professionals on June 18, 1993 with the vision "Earthquake Safe Communities in Nepal by 2020". NSET was registered at the District Administration Office, Kathmandu on April 28, 1994 and at the Social Welfare Council on August 10, 1998. NSET was conceptualized with main objective "to foster the advancement of science and practice of earthquake engineering and technology for mitigating the earthquake risk and increasing the seismic safety, to enhance professionalism, professional engineering and scientific ethics and to further the objectives of the International Association for Earthquake Engineering as applicable to Nepal". Also, three strategic objectives have been outlined addressing Information dissemination & Knowledge Transfer, Advocacy & Networking, and Establishment of Credible Institution & Resource Center.

9. UN-Habitat

UN-Habitat is the United Nations program working towards a better urban future. Its mission is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all. The United Nations has designated the first Monday of October of every year as World Habitat Day. The World Habitat Day 2015 has been celebrated organizing various activities on the theme 'Public Spaces for All' throughout the country. They organized the program in an expectation to boost government's plan to arrange at least one open space for every 25,000 population in the Kathmandu Valley. In order to create additional open

spaces, the metropolis has also planned to procure privately owned buildings and land in city's core areas.

10. Various other agencies

Various other agencies like wards, TLOs, users committee and specified organizations for particular open spaces are responsible for the management of open spaces. Wards are also responsible for the management like in Mitra park, UN park Development Committee (under MoUD) for the management of UN park, Pashupati Bikas Kosh for Pashupati area, Hanuman Dhoka Durbar Square Conservation Program for Kathmandu Durbar Square, Bagmati Savyata for Bagmati river premises, Nepal Army for Tundikhel etc.

Further, Mr. Surendra Raj Panta, Ecologist and Environmental Inspector of **Ministry of Science and Technology and Environment** states that they have given suggestions regarding the open spaces in the preparation of Land Use Policy 2072 to the Ministry of Land Reform and Management but they themselves are not involved in the preparation of any guidelines regarding the public open spaces in Kathmandu. Besides **Institute of Engineering (IOE)** is also involved in the updating of the byelaws and the institute is also involved in number of projects related to urban development under various centers like Center for Urban Planning Studies (CUPS), IOE Consultancy Services, Center for Disaster Studies (CDS). In addition professional groups like Regional and Urban Planners' Society of Nepal (RUPSON) and Nepal Engineers' Association (NEA) are also involved in the policy level discussions. Government invites the members of RUPSON and NEA in policy level decision making programs. They also execute various talk programs, meetings and campaigns on urban development programs.

Chapter 6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Public Open Space is not only the place for clean air breathing; it is also the place for social interaction. These public spaces are important aspects of cities and plays important role in daily activates to all age group. Most of the open spaces in Kathmandu are historical, neighborhood and religious. Open spaces have a positive effect on nearby or surrounding property values. Parks tend to increase the value and sale price of homes and property located nearby. Therefore it provides economic benefits to residents, municipal governments and as well as private real estate developers.

There should be appropriate and different policies related to the open spaces for their protection, proper utilization and to make them more vibrant. The by-laws also need to be revised for providing qualitative public space to benefit all user groups. Policies should clearly talk about the penalties and punishments for violating the open spaces such as encroachments. At the national level, there is no clear and unambiguous policy regarding urban open spaces and parks. The existing provisions are fragmented and embedded within other policies and regulations. The policies lack the specific guidelines for public open spaces.

Public open Spaces are significant aspects of cities which are taking as an instrument to define the character of cities and their definitive urban culture. Open spaces protection has become essential in Kathmandu Metropolitan City to promote recreational, social and health facilities. Recent April 25, 2015 earthquake disaster has further added value to the open spaces for seeking shelter. Hence, Public open Spaces are necessary for making good urban character for socialization and good environment.

6.2 Recommendations and Policies

The policies have mentioned that there will be provision of one play ground for each election area and in response to this the municipality has started to construct parks and gardens in different wards using their budgets. By laws, have mentioned that any kind of projections or cantilevers are not permitted in the traditional open areas like bahals but we observed lots of such violation cases but the concerned authority is reluctant and such type of tendencies are increasing in the city. Besides these, there are number of similar violation cases which the study has found. The study also concludes the inadequacies in the present policies for public open spaces in both local and national levels, and it needs proper revision. In response to these findings from the study, following recommendations have been made for consideration while formulating the policies for Public Open spaces in Kathmandu.

Incentives and Disincentives

- Establish a motivating mechanism to encourage people to contribute their land to develop open spaces in their neighborhood. It can be done through providing them certain incentives
- Particular penalties and punishment mechanism should be developed for disobeying particular provision of byelaws.

Consideration for women, children, elderly and disabled

- Special consideration for elderly, women, disabled and children should be provided while planning the open spaces. For example, this could mean organizing women-only activities, e.g. women's bike rides, sitting areas etc. providing infrastructure better-suited to elderly and disabled people, e.g. flat, well-maintained walking paths, disable friendly pathway designs etc., Improving the lighting of public spaces to increase young women's sense of safety while social programs to improve gender equity will help modify social norms which currently limit the range of activities that young women engage in public spaces

- Usually open space constitutes one football ground played by adult male. Usually children, women and elderly feel uncomfortable to use football ground as public open space. So there should be room provided for all the groups.

Accessibility

- Controlled access with closed gates in the open spaces for security reasons should not be taken as ultimate solution rather; other mechanism can be adopted such as awareness programs relating the importance of the open spaces. Awareness programs on importance of public spaces for social interaction, preparedness in time for disaster like fire, earthquake has to be conducted by municipality & other agencies. Certain fees can be collected from the community for the maintenance of the open spaces so that they feel sense of belonging.

Institutional Co-operation

- The respective institution and agencies responsible for preparing the plans and policies should co-ordinate each other while preparing policies related.
- Improvement of the land register helps the central government to monitor changes in land use.
- Organizational and technical support can help in development of local environmental organization through promoting awareness and action for the preservation of open space.

Community/ Participatory Planning

- The involvement of community plays a vital role in the planning and maintenance of the open spaces so inclusion of local community is quite important in the planning of the open spaces. In many cases community has initiated the planning of the open spaces like in Nandikeswor Bagaincha. Further KMC officials also mentioned that many locals approach the municipality for the open space proposals in their community.
- Thus community/ participatory planning should be ensured while planning for open spaces. The local community should be involved from the beginning of the design till the design finalization and to prepare model in which the local community will lead its management and maintenance in future.
- There should be initiations to promote community based programs.
- Formation of community network will lead to effective communication between community and local government authorities

Vehicle Parking

- Land Use Policy should mention no parking on ground level (Parking should be managed in basements or upper floors- buildings developed for parking).
- Develop Parking Control mechanism (space and fines) - Designate areas for parking and develop punishing mechanisms for parking in the restricted areas like paying fines.

Management and Maintenance

- The parks should be designed according to low maintenance and low cost design principles like planning of park with less flowers as it is expensive to maintain flower gardens, with flowers on trees only as the flowers are less likely to be damaged, use of local materials etc,
- Local community should be prioritized and encouraged to invest in their Public open Space. This can include, but not limited to, the city and residents working together, non-profit organization contributions, volunteers' contributions, country's investment, business investment and/or support, community investment and self management.
- Ensure planning for maintenance- For most open spaces, there are three groups of tasks that need to happen for adequate maintenance. First, the furniture, playground and sports equipment, toilets, and water taps need to be checked and repaired regularly. Secondly, the

sports field, green spaces, and landscaping (including groundwater recharge points) need to be maintained. Third for the sake of hygiene and cleanliness, the grounds, toilets, and solid waste management which include continual cleaning of waste bins and disposal of wastes in the proper place. These tasks ensure that open spaces retain their enhancements after initial interventions are made. The community open spaces can be managed properly through the involvement of community itself.

- Collaborate and involve school students in simple maintenance works of the public open spaces such as removing the litters, cleaning the park, lawn mowing, etc.
- Littering should be checked and even fined to those who violate the littering rule in the open spaces.

Open Space Area and Population Density

- The area of park designated should be in accordance to the population size of neighborhood. For eg; a ward having larger population density should have a large park or two or three parks at different places to cater the overall population depending upon the accessibility (should be at walking distance- 500 to 800 m radius). According to **National Urban Development Strategy 2015**, WHO and FAO recommend a minimum availability of 9 meter² per person of green open space for the city dweller. **Planning Norms and Standards, 2013** the size of open spaces should be 0.4 ha for 800 population, 1 ha for 10000 population and 2 ha for 20000 population.

Hierarchy of Public Open Spaces

- Public Open Space planning should have provision for City level, Ward level and Neighborhood level public open spaces. The provision of City level Public Open space is mentioned in the policies and programs 2071/72 issued by Government of Nepal and the provision of ward level open space is mentioned by KMC.

Public open space used for uses such as hospital or school at the expense of the open space

- Government has designated open spaces in the hospital, schools and the compounds of other institutions but these spaces would not be available for social welfare like walking, playing, resting, socialization etc. so the public open spaces open to all should be encouraged in the neighborhoods.

Emergency shelter for disaster

- Kathmandu being a disaster prone area there is a need of suitable open space to quick shelter. Getting to know, that where these open spaces are located beforehand can save lives and increase communities resilience to disasters. When disaster hit, people can immediately go to these sites to get the aid they need. Therefore, disaster kits can also be provided in these open spaces. One of the case study Narayanchaur has provided such kits within the area for emergency response. The open spaces should be organized and well equipped.
- Plans should be prepared showing these open spaces and the possible safe routes to reach these spaces. In case of traditional city core, enough strengthening should be made in the vulnerable escape connection route with the open space.

Encroachment

- The encroachment should be analyzed properly and the policies should be formulated so that the violator will be fined such that he/ she is required to restore the land to its original condition and also pay for all expenses related to correcting the encroachment.

Safety & security

- Public open spaces should be made free of criminal and immoral activities". Criminal activities can be discouraged by avoiding hiding corners or pockets and with visual surveillance everywhere. Immoral activities/behavior should be curbed with the involvement of local community or even police action if needed.
- Ensure that all public parks and recreation facilities are appropriately signed to welcome visitors, allow for quick identification by emergency response personnel and the public, and promote adherence to adopted rules and regulations. Like positioning park restrooms so that public access doors are clearly visible from the adjoining public street or park driveways
- Safety measures such as emergency telephone booths should be provided in the open spaces

Connection Safety

- The open spaces in Kathmandu are usually connected through narrow lanes with tall or dilapidated houses which are more vulnerable during disasters. So, government should survey all the existing open spaces and identify the situation of the connections to these open spaces and formulate guidelines for the safe access to these open spaces like the width of access, width to height of the building along the access ratio etc.
- Maps should be prepared showing the connections to these open spaces from the neighborhoods.
- Management

Value Capture

- Open spaces such as parks and recreation areas can have a positive effect on nearby residential property values, and can lead to proportionately higher property tax revenues for local governments (provided municipalities are not subject to caps on tax levies).
- The economic impact parks and recreational areas have on home prices depends on how far the home is from the open space, the size of the open space and the characteristics of the surrounding neighborhood.
- Open space, recreation areas and compact developments may provide fiscal benefits to municipal governments.
- Compact, walk able developments can provide economic benefits to real estate developers through higher home sale prices, enhanced marketability and faster sales or leases than conventional development.

Ecology

- Open spaces such as parks and recreation areas should be design eco-friendly so that it reduces the ecology impact and provides green spaces and water bodies in concrete urban scape.
- Ground water Recharge and other green designs should be used for park design which will not only have an ecological impact but also educate and aware people about the eco friendly design and use them in their own private gardens or houses.

- Provide incentives and promote the eco-friendly design in public open spaces.
- Also encourage people to walking and bicycling to access these open spaces.
- Sources of ponds and lake/rivers should not be disturbed by the building construction nearby, enough setbacks should be provided which is mentioned by the revised bye laws enforced after the 2015 Earthquake in Nepal. Polluting to these rivers and ponds should be checked and penalized to the violators.
- Regular pruning and monitoring of the tall trees should be conducted by the management to avoid any threats to the people from the falling branches or fruits.
- Edible landscape should be promoted in Open spaces design.
- There should be room for Urban Wild life in the open spaces where necessary.
- Ecologically sensitive open spaces should be protected accordingly.

Others

- Adopting a broader definition of urban design in the public space policy framework. Urban design guidelines should not only concern urban elements surrounding public spaces and vegetal landscaping issues but rather encompass all aspects of the public space experience (access, activities, equipments, facilities, lighting, etc.).
- The standard size of open space in current land development practice is hardly 5 % whereas in our traditional compact settlement also the provision of open space is about 10-12%. So it should be rethought or increased in urban area like Kathmandu where the risk Earthquake and fire is also high.
- There should specific standards & guidelines for public open spaces. It should include the provision of basic infrastructures associated with the open spaces like: drinking water, lighting, trash bins, furniture, shade, shelter etc., category of open spaces for different age groups and activities (for safety purpose), hard and soft surface percentage, safety measures, categorization of the commercial activities in the park and open spaces, maintenance (plan for low maintenance park) etc.
- Improving existing public spaces and reclaiming the occupied ones- Government should improve and strictly protect the traditional open spaces like bahals. This will help in optimum utilization of these available open spaces.
- Setting up a system that structures vendor activities in space, with stricter rules and guidelines for maintenance and the regulating of behaviors that are harmful for users (for cleanliness, no driving in the park etc.)
- Establishing an effective mechanism to monitor and protect existing public spaces. This could include policy measures requiring that formal permissions from the competent authorities be delivered for any physical or functional alteration to an existing lakeside, park or public gardens. Detailed maps of all public spaces, at both the city and neighborhood levels, could be created to monitor changes.
- Strong Implementation mechanism should be developed by the implementing government organization.
- Government should also include inclusive park in urban planning and development as an integral part.

WAY AHEAD

The overall goal of this study is to increase the knowledge about the condition availability of public spaces in our cities. Even though the significance of public space has increased amongst us specifically because of recent earthquake, but it is fact that, both the supply and quality of public space in our cities need to be enhanced. The overall goal is to contribute to support the local government in creating and promoting socially inclusive, integrated, connected, environment sustainable and safe public spaces to all. RECPHEC however, along with advocating to the government about the issue would contribute to support through local community engagement. RECPHEC has been working with local community since many years, it is very clear that the community understands the urgent need to address this issue. The communication bridge between the people and government needs to be strengthening for effective results. RECPHEC is committed to fill in the gap and support the local government in ways possible.

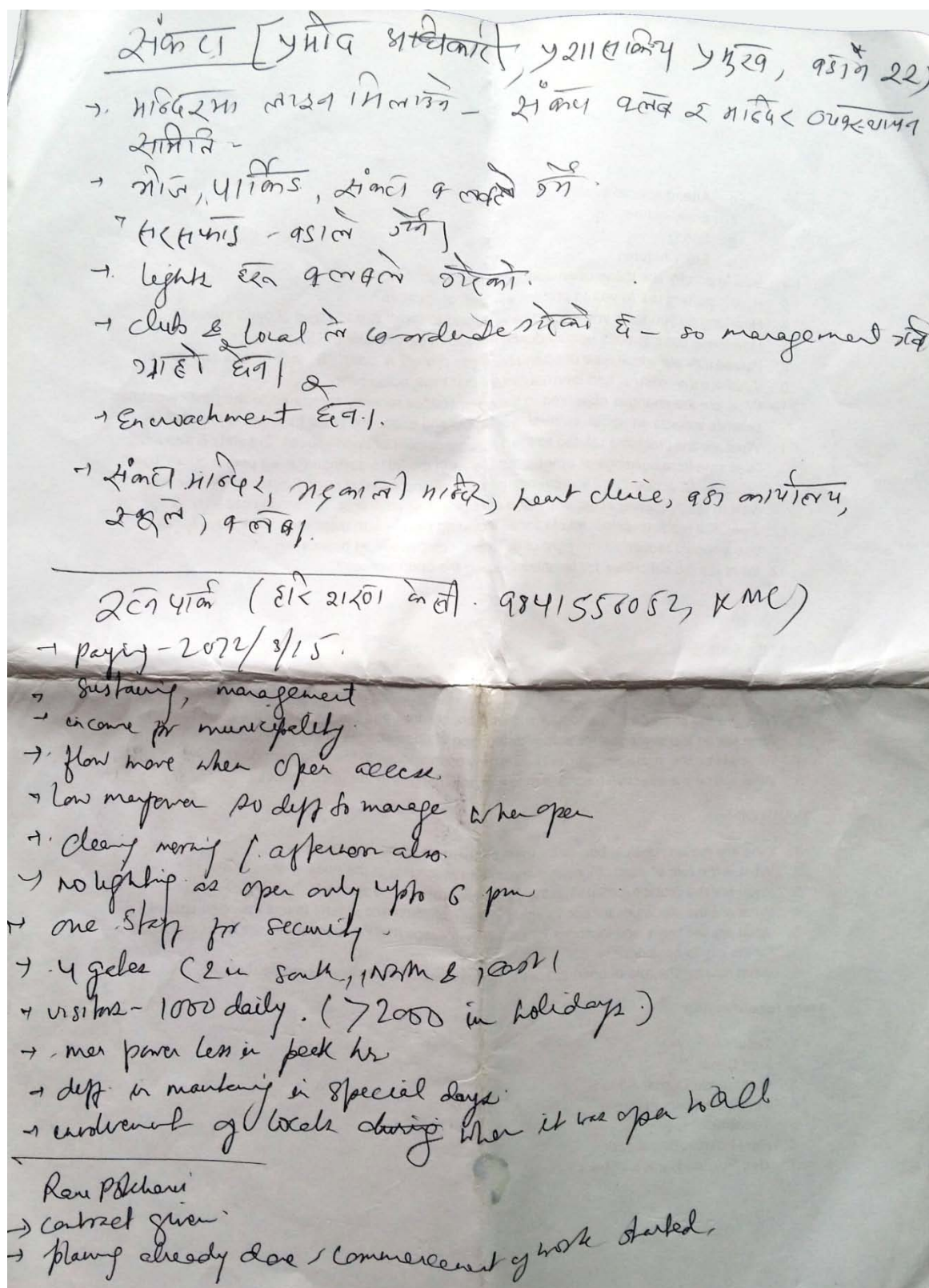
REFERENCES

- Hada P, Public Open Spaces of Kathmandu City, A case of Tudhikhel, (2011) M.Sc Urban Planning Thesis, Pulchowk Campus, IOE, Tribhuvan University
- Pant M, Funo Shuji, (2007), Stupa and Swastika : Historical Urban Planning Principles in Nepal's Kathmandu Valley
- Pant M (2002), A Study on the Spatial Formation of Kathmandu Valley Towns: The Case of Thimi, Doctoral Dissertation, Kyoto University
- Tiwari, S. R. (1990), The Urban Spaces of Kathmandu Valley Towns: A Historic Perspective
- Tiwari, S. R. (2011), Presentation on Characteristics and Challenges of Public Spaces of Kathmandu Valley Towns
- Tiwari, S. R., 1999. Kathmandu Valley Urban Capital Region and Historical Urbanism Historical Environment Management: Lessons from History.
- Shrestha S, 2013, Public Spaces of Kathmandu Case of Buddhanagar and Sinamangal Neighborhoods, M.Sc Urban Planning Thesis, Pulchowk Campus, IOE, Tribhuvan University
- Ministry of Federal Affairs and Local Government, 2013, Environment Friendly Local Governance Framework, GoN
- Ministry of Urban Development, DUDBC, 2067, Urban Environment Management Guideline, GoN
- Ministry of Land Reform and Management, 2072, Land Use Policy, GoN
- Ministry of Urban Development, 2015, National Urban Development Strategy, GoN
- KVDA, 2064, Building Byelaws, GoN
- KVDA, 2015, Atlas of Open Spaces, GoN
- KVDA, 2015, Nandi Keshwor Bagaincha Revival Project, GoN
- Community Service Center, Community Police Service, 2014, Nandi Keshwor Bagaincha Revival Project, GoN
- KMC, 2010, Risk Sensitive Land Use Plan,
- KMC, Budget 2073/74, pp 7, pp 14, pp 22-23
- Ministry of Urban Development, DUDBC, Planning Norms and Standards, 2013
- Shrestha P, 83 open spaces to S.A.M, setting an Example in Nepal how parks and open spaces can strengthen communities
- Gibbons J, 1998, Open Space Planning
- G Basyal, S Chaudhary, S N Shrestha, 2015, Open Spaces Inventory and Analysis for Planning of Earthquake Emergencies for Safe Evacuation Sites in Kathmandu Valley

- S Manandhar, 2015 Management of Public Land for Urban Open Space: In case of Disaster Risk Reduction FIG – ISPRS workshop
- HealthBridge, 1 Nicolas Street, O8awa, ON, Canada K1N7B7, parks and open spaces in Kampala
- Work for a Better Bangladesh (WBB Trust), Parks and playgrounds in Dhaka: taking stock and moving forward- A report on the characteristics of parks and playgrounds in Dhaka as well as recommendations for their improvement

ANNEX

Documents collected during interviews



[illegible]

७५०१ संरचना - हरे जोशी, ७५०१ संरचना
 गारापोर चौर - ७५०१को जग्गा - MOVO.
 पल्लव स्क्वायर - वेल्ड शाफ्ट ५२ मफ
 कुल मोचन - २९ मफ - ७५०१ संरचना
 ४१२९, ४१६५ ताल - compound - ७५०१ संरचना
 पशुपति क्षेत्र - पशुपति विकास कोष.
 त्रिभुवनेश्वर, कालीमाई - ७५०१ संरचना
 २०१५को श्वर - ७५०१ संरचना.
 त्रिपुरेश्वर महोदय
 नागपोरवा, गहवापोरवा - महा. नं. ५१.
 अने महोदयको उपचारण समिति तोकिएको, समिति
 खोली - ७५०२वा, गोकर्ण, सोरुङ.
 २
 गारापोर चौर -
 → Solar & ship area - by Nepal telecom
 → Acupuncture track - proposed.
 → ९८५१०६९६९६ ९८५१०६९ ६९६ - नरेन्द्र ब. श्रेष्ठ
 सा. उदा. पिक, सेवा, सा. उदा. पिक पुहरी, नागार्जुन सभा. को संयोजन
 मा वनेको पार्क.
 developed हुनेमा Community
 police स्टेशन, २०५२ (मालमा)
 pilot project को रूपमा कार्य
 रहेको छ।
 branch of police
 जवतान्त्रिक राखि दिने
 पार्कको सुरक्षा सलफा. देखि
 गर्दै।
 - हलमा दुई चोटी ५० जना पुहरी
 लगाएर सफा गरिन्छ।
 - कार्यका लागि नभएको।
 - morning every walk, यो. गरिने।
 - awareness को लागि दिइएको।
 - महो. मुने. रा.

द्वार - ६९१ -
 भूकम्पमा मा. वनेको
 पानी २०५३ने वनेको।
 entry point - ५ nos.
 daily - १५० - २००
 visitors

महानगर पालिकाको नाम [9841306853 - काठिण्डु]
 एउटा गोकर्ण देवस्थान क्षेत्र शिरोधार्य कार्यक्रम
 एउटा गोकर्ण देवस्थान क्षेत्र शिरोधार्य कार्यक्रम
 १९८५/३०६८५३ -
 १९८५/३०६८५३ -

महानगर पालिकाको नाम [९८४१३०६८५३ - काठिण्डु]
 एउटा गोकर्ण देवस्थान क्षेत्र शिरोधार्य कार्यक्रम
 एउटा गोकर्ण देवस्थान क्षेत्र शिरोधार्य कार्यक्रम
 १९८५/३०६८५३ -
 १९८५/३०६८५३ -

→ entry fee (5 counters - tourist & funding)

→ 60% of Gorkha & 40% for Municipality
 for Gorkha ownership areas

→ 19, 20, 23, 25 wards in Durbar square

→ Solar Lamp - 28 nos → from entry fee

→ toilet under school - free

→ no coordinator, with Gorkha, archaeology & KMC

→ transfer of officials - from Kathmandu

→ programs not allowed inside the Durbar square - due to
 sand vibration

→ documentary movie shooting charge

महानगर पालिकाको नाम - काठिण्डु -

दिनांक १९८५/३०६८५३ -

महानगर पालिकाको नाम - काठिण्डु -
 दिनांक १९८५/३०६८५३ -

महानगर पालिकाको नाम - काठिण्डु -
 दिनांक १९८५/३०६८५३ -

Ratnapark

- 2072/3/15 payment for entrance
- For management purpose and sustainability of the park itself.
- Flow was major previously
- Morning time : for cleaning major
- One staff for cleaning the wastage of day including toilets
- Joggers group can be accommodated but no one has come for that questioning
- Lighting are not installed
- Security: 1 after 12 is recruit for safety
- Entrance gate 4, east, west 2 , south 1
- Daily 1000 in average
- 3000 shooting charge 4000 excluding the price for individual
- People using the park furnitures in negative way
- Baisak 1
- Congress ko mahadibedan
- Program in tudilkhel
- Previously park was cleaned by many other bodies
- Ranipokhari is maintenance is going on
- Wall fencing is done is
- In Chaat n bhaitika publicly opened

Narayan chaur

- 150 morning walk
- Evening 5:30 onwards 150 person
- Maintenance done by police person
- Cost beared by funding as well
- Ntc donated bench n solar on side
- Accupressure track proposed.. Lhola ko dunga n baluwa...
- Guthi sansthan ko jagga
- Sahari bikash lai disakeko
- Managed by samudaik sewa krndra and samudayik praharu sewa
- Prahari basanta kumar thapa
- Community police , developng countries works with collaboration with nagarik samaj
- Branch of police department, people can directly talk with them without any fear
- Police themselves are responsible for cleaning
- Surrounding banks n organization help fir the development of park, not any funding
- Awareness programs as well dine, blood donation , school programs
- Video shooting n bhasan are not allowed

Photographs



Tebahal Surroundings



Tebahal Entrance



Temple inside Rani Pokhari damaged by April 25 2015 earthquake



Notice inside Ratna Park



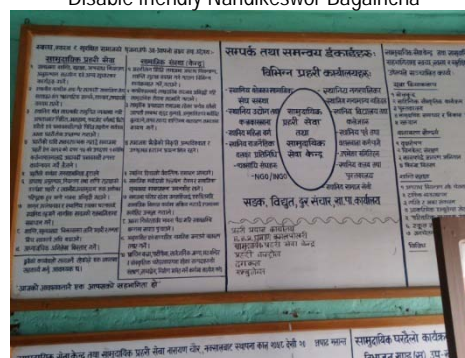
Shooting inside Ratnapark



Disable friendly Nandikeswor Bagaincha



Trash Bins in Nandikeswor Bagaincha



Notice Board in Nandikeswor Bagaincha



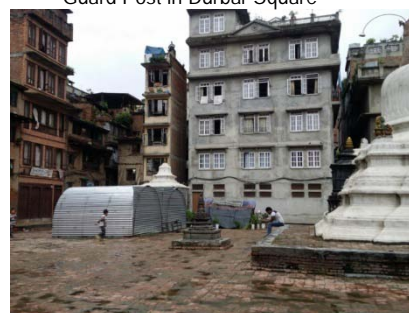
Deteriorated Heritages in Durbar Square



Guard Post in Durbar Square



Vehicle entry time control in Durbar Square



Temporary structure in Yatkha Bahal area



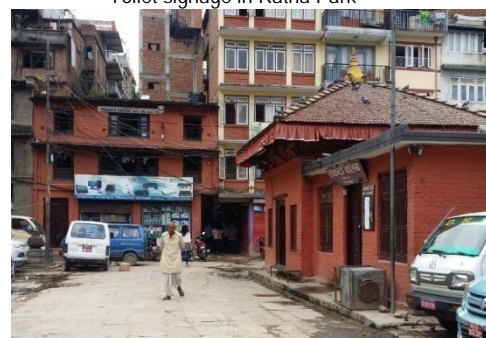
Entry Schedule in Ratna Park



Toilet signage in Ratna Park



School, Ward Office and Public Toilet in same building in Tebahal



Club Office in Tebahal